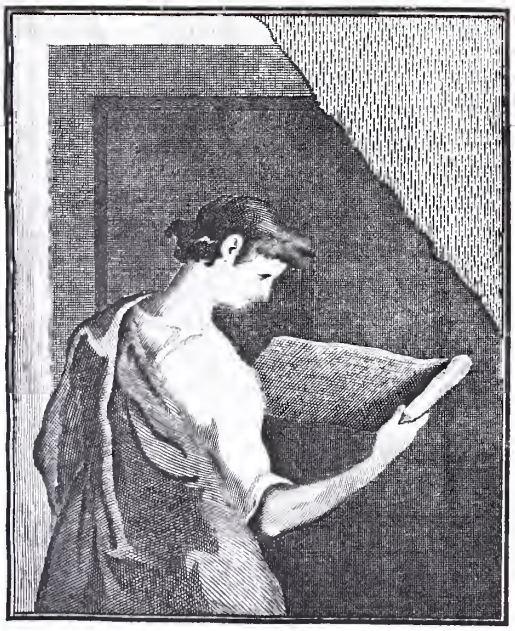

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The Workshop

A Monthly Journal

Devoted to Progress of the Useful Arts

Edited by

Prof. W. Baumer, I. Schnorr and Others.

VOL. I.

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The Workshop.

A Monthly Journal, devoted to Progress of the Useful Arts

EDITED BY

PROF. W. BAUMER, I. SCHNORR AND OTHERS.

VOL. I. No. 1.

OUR PRESENT NEED.

In proposing the question, what is our present need? there is necessarily implied the acknowledgement of

»Something rotten in the State of Denmark;«

that is to say, that the actual condition of matters connected with Industrial Art is so critical, that extraordinary measures must be resorted to for its regeneration, or, that since the general public may be said to be suffering in the same way as Trade itself, it must be universally confessed, that Taste is much in the position of the »Sick Man«.

It would be superfluous to enter upon any proof of this, since the efforts which are being now everywhere made to advance artistic feeling in trade show the persuasion to be universal; but the truth of the assertion will be evident to any one who may be disposed to question it, if, like a skilful and prudent physician, we expose the diagnosis of the patient's disease before we proceed to discuss its remedy.

We will look for a moment at our present doings in order to explain in as few words as possible the actual position of Taste and Art, so far as they lie within our province. If we leave out of the question articles of the most common use, and look to those which exhibit a certain pretension to artistic taste, the first thing that strikes us is that they are utterly devoid of any common type, so that any one accustomed to the creations of past ages will be painfully impressed by the defect in style, or distinctly stamped character.

Indeed in ordinary middle-class houses where the appliances of luxury and art are often unknown, an obsolete Rococo runs off, through all these productions, in a sort of unconscious way, as if it were a thing of course. In tables, chairs, and all articles of furniture in wood, irregularly flowing lines usurp the lines of beauty, and where corners and panels are to be ornamented, a few scrolls are introduced, and that is thought sufficient; on the other hand, in paper hangings, curtains, furniture stuffs etc., flowers and leaves of natural form and color are preferred.

It is different, where education and luxury, or at least comfort bear rule. Here indeed the Rococo style is also seen, and especially of late, not however in mere unconscious existence, but as a style taken up again and imitated consciously with artistic intention. It is indeed but a comparatively small party who does this, but like others it is a party, for the artistically educated world is divided nowadays into different groups. Conscious that it has nothing that it can call its own, it looks abroad to that which is far removed from it, both as to time and place.

Some therefore go back to the past, and according to their individual sympathies, or because they meet here and there with some striking associations, some supposed coincidence with the aim and purport of the present day, strive for the revival of this or that style once dominant in byegone ages.

As a consequence of this system of copying and imitating, all the styles of past periods in Art have, in turns, been put to the test, however strange and uncongenial to modern habits and feelings. Doing homage to almost pure Paganism on the one hand, and pure Mediævalism on the other, we have endeavoured to reproduce the sublimity of the Egyptians, the intellectual grace and finish of the Greeks or Romans; or to equal the dazzling splendour of the Byzantine, and the lofty grandeur and constructive perfection displayed in Gothic Art. Unable however to ignore the gulf which separates Modern Civilization from the benighted darkness of the Middle Ages, we have again opposed to Mediævalism the cultivation of the Renaissance styles.

In the 15th century simultaneously with the Reformation in religious matters, which separated Light from Darkness, a great change in Art was also wrought as a part of the same great awakening of the human intellect. This darkness vanished with the Middle Ages, and a new light dawned with the Renaissance. Living ourselves in an enlightened age, it would be but natural to regard this style in which progress seems still possible, as most adapted to our present wants and views. Deviating however from the straight path, we have indulged in the reintroduction of the styles of Louis XIV, XV, and XVI of France; all more or less unconstructive and confused.

Last of all we have cast our eyes upon the far off countries of the Eastern World. Enamoured of the gor-

geous brilliancy, of the richness of colors, displayed in Eastern Art, we have been lost in contemplation before the productions of Persia, India, China, and Japan. All of exotic growth, they have not taken root with us, and imitations are comparatively scarce, except in carpets, curtains, and hangings, where they gain ground more and more every day.

This retrospect, it must be confessed, is sufficiently unsatisfactory. In forsaking the true path, we, the most civilized nations of the world, are grasping after shadows, which constantly elude us, the result being a confusion of styles badly copied or imitated, their characteristic features frequently misconstrued, and adopted more as a matter of fashion, then as a true and living utterance of the necessities and feelings of the age. Their details are often so mixed together that we sometimes see, illustrated in one and the same object, a conglomeration of the worlds history, an interval of centuries between its head and foot.

But this Babel of confusion is not even deemed sufficient. Why, it is asked, have any style at all? Since it is Nature which lends her forms to Art, let us copy her forms as they appear, as closely as possible, and apply them whether suitable or not to the object we have to decorate. This, the receipe of Naturalism greatly in vogue nowadays, cannot be condemned too strongly.

But worse than this, there is another capital offence, closely connected with Naturalism. Setting at nought the nature of the material, together with the purpose of the work, and its most rational expression of form, some natural leaf, branch or flower, or it may be, some other vegetable or animal produce is taken up, and made to represent the very object in question. Nor does this most pernicious system, so suicidal to true art, stop at simple reproductions from nature, but any one thing picked up at hazard according to the decrepit fancy of some brainless head (for which reason probably these productions are called fancy articles) is made to represent any other which subserves quite a different end. Thus for instance, a hat or a jockey's cap, by making a hole on the top, may serve, according to size, as a matchbox, inkstand, candlestick, ladies' companion, cigarcase or tobaccobox, which destinations may be varied at pleasure. Substituting also one material for another, an object is often made to look as if it were of different stuff from that of which it really consists. A porcelain vessel, e. g., may receive the shape of a wooden tub; caskets and boxes, instead of being mounted in metal, are bound by what is to represent leather straps, nay even works of precious metals may not look like gold or silver, and are brought into forms borrowed from a much inferior material. This is enough to show that we have succeeded to bring extravagance even into shape and system.

What are the consequences of all these mischievous tendencies? We have ceased to be guided by the principles on which true art was at all times practised. We have lost sense and feeling for true beauty of form. We ignore even the simplest dictates of common sense, viz., that every vessel, every article for necessity, comfort, and luxury, has some distinctive rational form, the task being to elaborate this into the form of beauty, that each material is marked by certain artistic qualities which must be brought into characteristic shape, into the requisite forms of expression.

To all this must be added a certain deficiency in the treatment of relief decoration, especially in figure subjects, frequently too free and prominent in design, and without due regard being paid to the main object which it is intended to decorate. Last, but not least, if we have any sense at all of color, we seem to be afraid of it, and to lack skill in its employment.

Certainly these are convincing symptoms of a serious disease which however, most fortunately for ourselves, is not without remedy. The conviction of our deficiencies is gradually gaining ground, and advice is offered from all sides, through which we may hope for thorough recovery.

First of all, as a radical remedy, the style of some past period of Art is set forth for imitation, and if possible for further progress and elaboration. But as to the question which style it is to be, the profferred opinions are unfortunately very much at variance, and this has led to that false position, that confusion and helplessness in matters of Art already pointed out, with which we are to day afflicted.

Here then are already clearly seen the reasons why these measures have met with no success; but there still remains another inherent cause. Every style is the creation of the spirit of its age, and expresses in a distinct and striking form the character of that age. Now we Moderns have so widely separated ourselves from the Past, that none of its characteristic features and consequently none of its styles are any longer suitable for us; and the successful revival of any one style could only be expected if progress therein should seem possible and if it were universally accepted, and so furnished a proof of its conformity to modern ideas.

According to our view therefore not much good is done by the revival of any distinctive past style whatever. Nor is the creation of a new style at our command; for this depends not on the views or talents of a few individuals but is the result of the progressive changes of the age, of times ever varying in their character and aspirations, the style giving an artistic and earnest expression to their wants and feelings. We must therefore enter altogether upon a new course, by which, in cooperating with the change and progress of time, we may prepare ourselves for the future.

For this purpose it is altogether necessary to place the artistic work within our province on a rational footing, and to make *tabula rasa* of all inconsistencies, perversions and excrescences.

First we have to contend with that Naturalism which now appears our most dangerous enemy. Art must be cut off from the umbilical cord of Nature in order to feel her freedom. She must become the mistress, Nature the servant who prepares the materials, while at present the reverse is the case. We must arrive at the persuasion that vegetable or animal types are not to be employed just as Nature produces them; but that the Genius of Art must take up his position as absolute master, and dispose and transform at his discretion. Hence the neces-

sity for Conventionalism, from which however does not ensue the adoption of any distinctive past style.

Secondly, an unreasonable incongruity between material and form must be radically put aside. It is a fundamental error to suppose that the realm of Taste, as we may designate the field of Art-Industry as distinct from pure Art, is governed by no law whatever, that it may be the arena of individual preferences and that the door may be thrown open to every idea and every caprice. On the contrary, there are positive and distinct laws, natural rights we may say, which are not to be annulled because they are ignored or transgressed; indeed the art-workman is more fettered than the disciple of high Art; he is bound, not only by beauty but also by the purpose of his work; he has not only to look to beauty of form but to conformity of purpose, and his task is to unite both, and thus to produce beauty and conformity in one and the same form.

These laws originate in the destination of the object, and the material of which it is made. A determinate purpose demands a determinate form, which is still further regulated by the material and the nature of the process of manufacture it has to undergo; in fact the dictates of common sense, and their observation in each particular case must lead to different forms of expression. This may be sufficient to show that these laws do exist, and this being the case they certainly are made to be observed and not transgressed.

But when this point is reached, that is far from being all that meets our present need. The result is but negative; the field is cleared of weeds, the ground levelled and prepared for new produce, freed from the obstructions of former failings; and can only be termed positive so far as the laws of the true have been brought to light. But the practical result may be expected by superadding a judicious artistic education, always of course taking for granted that innate talent which is above everything necessary in the World of Art.

We have already pointed out that under the influence of these perverted practices, the conception of form, the taste for the beautiful has been lost. This recognition must return; the eye must be open to form, that is the great point; then the sense of color must be reawakened and this is not possible by means of theory alone, or by mere knowledge of the laws. The eye can only be educated by exercise of sight, by repeated contemplation and study of the beautiful. Where are we to find this? Not in nature alone; not at least in such a manner as to be of immediate use to the artist. To become a master of his Art, his task must be to subdue even Nature herself by conventional rendering of her types, and this he will learn by turning to existing works of art, the relics of the past, and exercising his eyes and understanding upon them.

Hence arises the necessity for the establishment of museums for the collection of works of art belonging to all the departments of Art-Industry, easily accessible to the artist and art-workman for observation, study, and copying; and to the public also for general promotion of taste and judgement. With them, for without such aid the process might be too slow, should be combined instruction on the nature and characteristic differences of styles, and the laws of structure, form and ornamentation, on the employment and effect of decorative coloring etc., all illustrated by the examples before the students' eyes.

But this is not enough. The keystone of the whole building is yet to be added: Schools for technical and industrial education established for the disciple of art-industry, the artisan himself. Till now, where the higher tasks of art-industry were required recourse was frequently had to the artists *„par excellence,“* especially to the painter and architect, not because such tasks were within their particular province, but because industry had no artists of its own. The consequence was that these problems were for the most part not solved according to their own inherent spirit, and the results came out either too pictorial or too architectural. Painters swept far beyond the limits imposed by the material employed, and architects remained within too narrow a range, deriving their ornaments from the hard and inflexible stone.

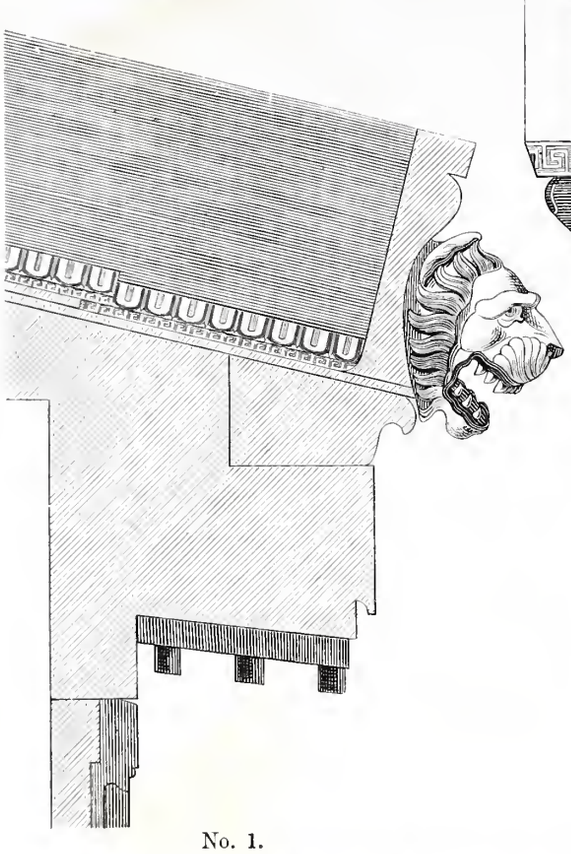
It is only the man who is perfectly acquainted with the material, its peculiarities and capabilities, that keeps within the proper limits and proper measures of liberty, and therefore it is necessary that the artisan should suffice for himself as to the artistic work which comes before him; that, as was the case in olden times, he should be himself an artist in his own peculiar sphere. To this the schools for technical and industrial education must help him by affording means of instruction suited to the special department with which he may be connected, and conducive to his training from mere imitation to invention; from simple copies and designs on paper to compositions in the material itself, to original productions of art-workmanship, and where great talent is displayed even to creations of high Art itself.

When all this is accomplished, and the public mind duly imbued with our present need, demanding

1. the repudiation of naturalism;
2. the extermination of all extravagancies and follies;
3. the formation of a sense of the beautiful;
4. the improvement of the artisans themselves into artists by schools of art in as many places as possible;

then indeed may we hope that the object we have at heart may be speedily realized. Happily this is not now a mere hope; for the necessity is universally acknowledged, and many, though not a sufficient number of institutions of such a character are being here and there called into existence, so that a brighter future begins to dawn before our eyes.

Specimens of Ornamentation.



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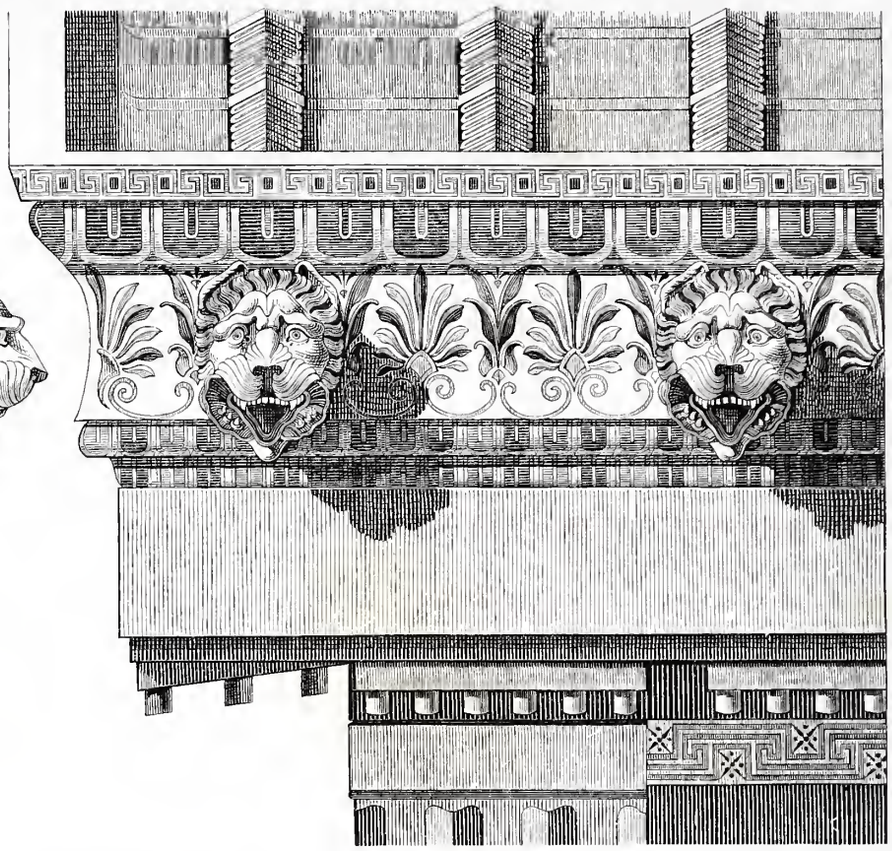


No. 2.

No. 3.

Nos. 1 and 2. Portion of a Grecian Doric Cornice; Section and Elevation.

The corona or drip, the most prominent part of the cornice, with the nosing on its lower end, has projecting blocks called mutules, from which are suspended a number of small guttae or drops, worked on its under surface or soffit. The crowning members of the cornice are enriched by colored ornament. The cymatium, separating the corona from the cyma, shows painted overhanging leaves, alternately blue, red and green, viz. the face of the leaf either red with blue reverse, or blue with red reverse, borders and veins corresponding to the color of the leaves, either blue and red, or red and blue, and relieved by the green ground of the intervening space. Bold lions'heads, forming water-spouts, project from the cyma at equal intervals, decorated with painted honey-suckle ornament, the scrolls mostly yellow, the leaves alternately blue and red, the lions' heads being white and red picked out with gold. The roof is covered with flat and roof tiles, sometimes of marble, sometimes of baked clay. Our drawing shows also part of the frieze forming the middle division of the Doric entablature, decorated with the triglyphs and metopes repeated at equal intervals the former as well as the mutules and drops being usually painted blue, the latter red. The plane face of the architrave, the lowest division of the entablature (not represented in our engraving) was probably left white or merely ornamented with metal shields or inscriptions.

The colors now generally admitted to have been used extensively, both internally and externally, in the Greek temples have been supplied in our specimen from the best authorities.

No. 3. Corner Piece of a Roman Frieze worked in marble.

No. 4.

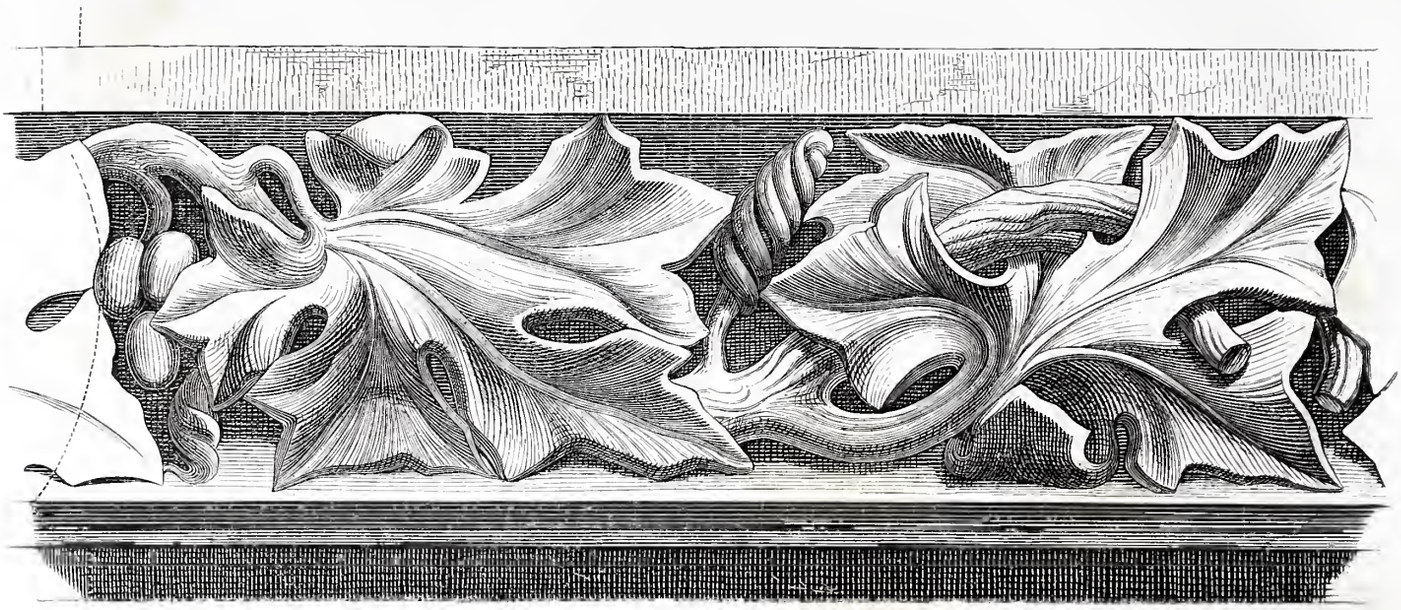
No. 5.

No. 4. Portion of painted Compartment from the open roof of the Cathedral at Messina (1130). Specimen of Arabian style under Greek influence.

The ornament left white in our drawing, is picked out in gold and relieved by colored grounds of vermillion and deep blue, the former indicated by light horizontal, the latter by darker shading.

The profile, illustrating the mouldings of the recess, is drawn in the elevation.

No. 5. Early Gothic foliated String-course, under windows of the church at Moret (France).

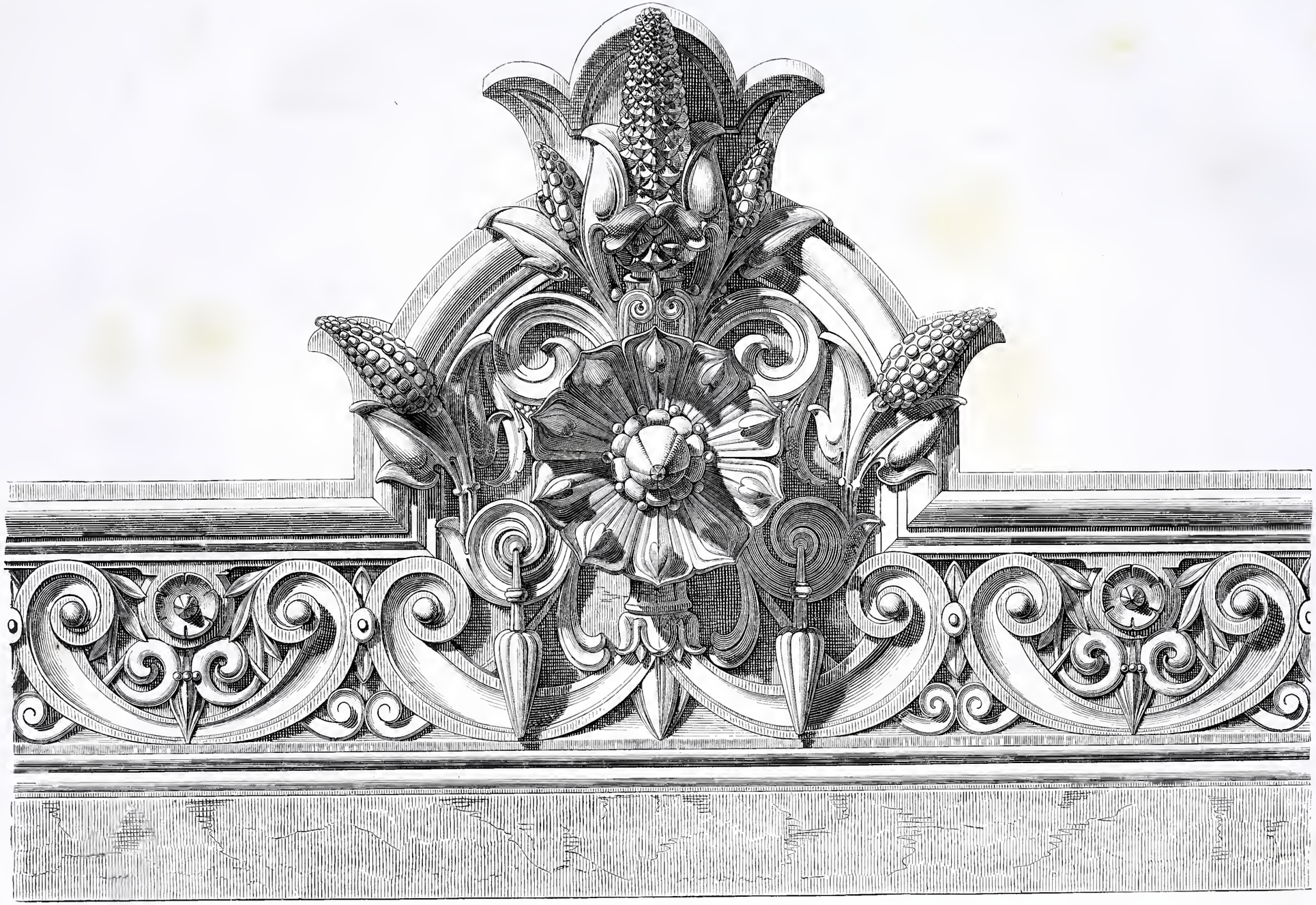


No. 6.

No. 7.

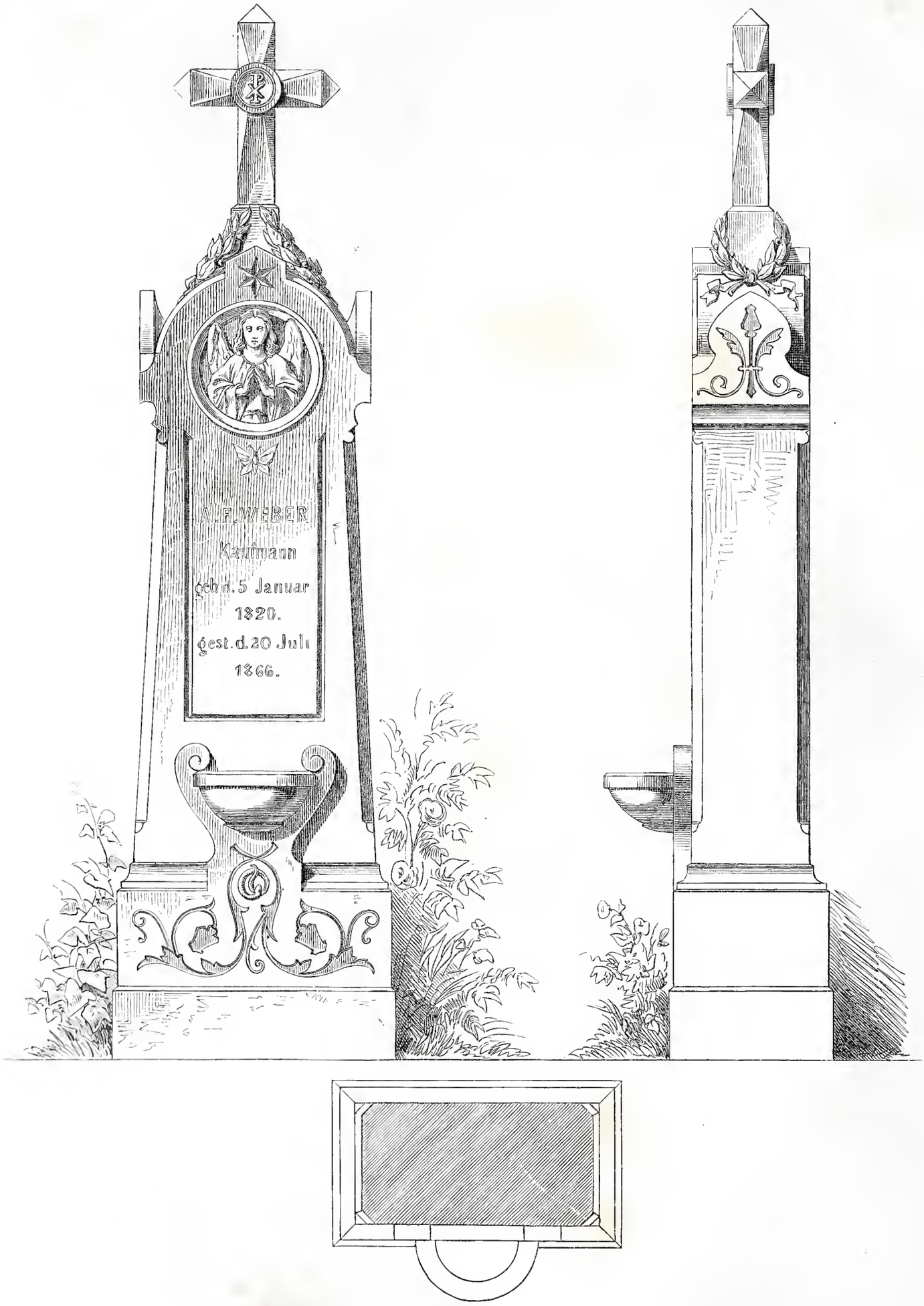
No. 6. Portion of late Gothic band of foliage from the church at Auxerre (France, 15th Century).

No. 7. Renaissance Frieze from the Louvre, Paris, time of Henry II. middle of 16th Century.



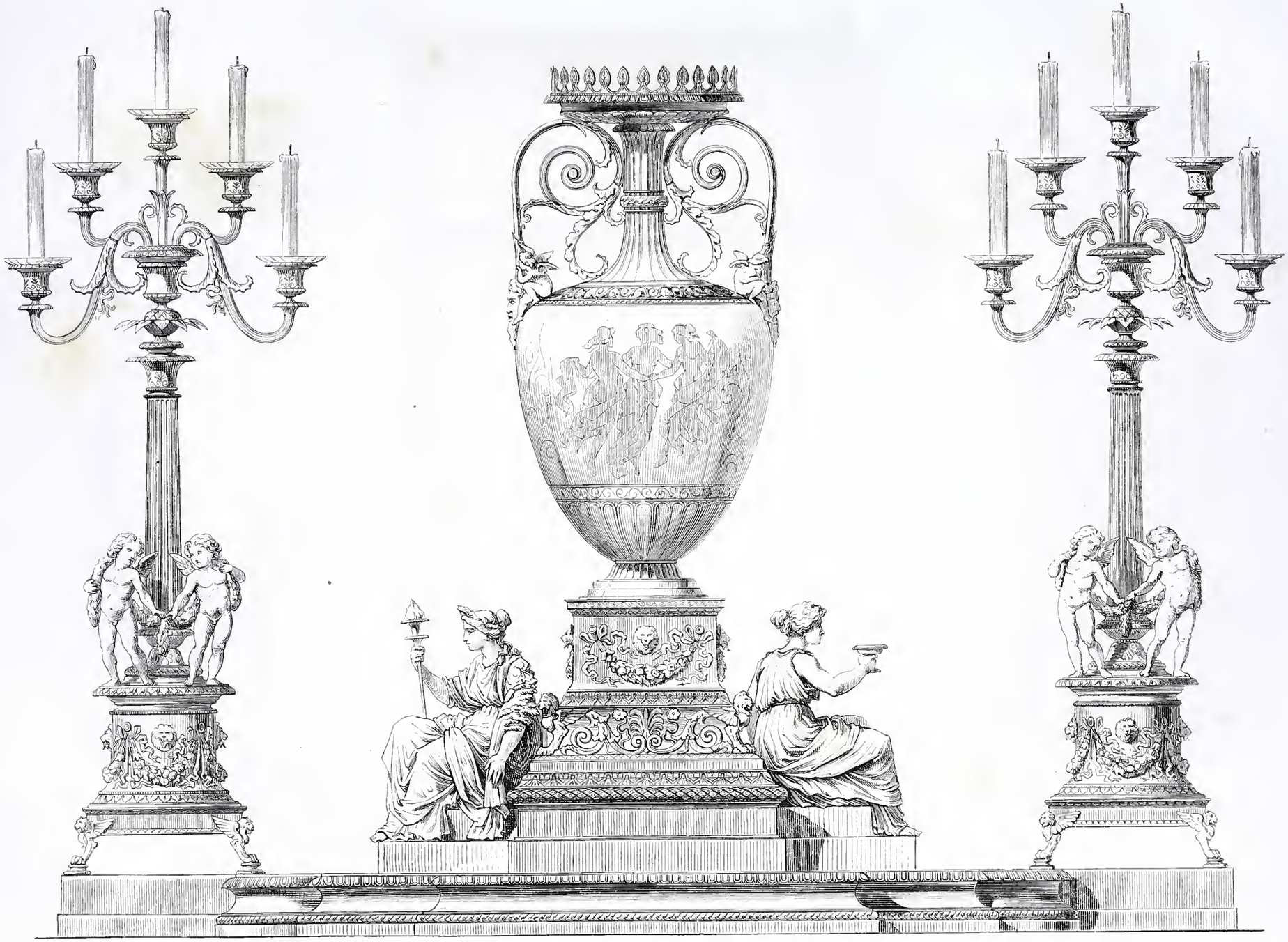
No. 8.

Modern richly decorated Gutter from the New Opera house Paris, executed in cast-iron gilt, Ch. Garnier Architect.



No. 9. No. 11. No. 10.

Nos. 9, 10 and 11. Memorial Stone with basin for holy water worked in new-red sandstone; for details see supplement Nos. 1—4.

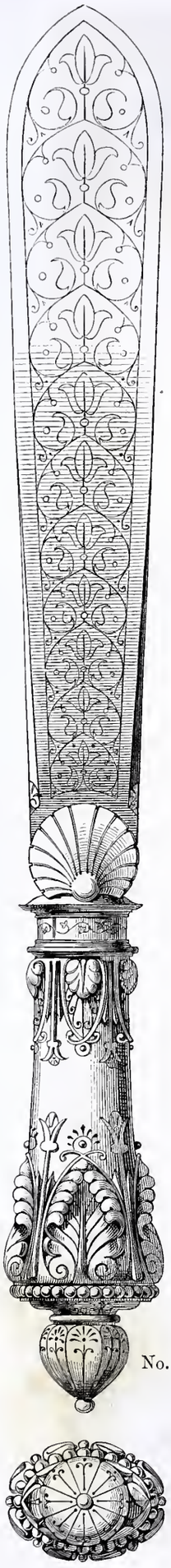


From the Paris Exhibition.

No. 12. Centre piece in Greek style; designed by Th. Hansen, Architect, executed by J. and L. Lobmeyr, Vienna.
The material used is principally bronze; from the centre of the base rises a pedestal flanked by two figures representing Hebe and Ceres, and surmounted by a crystal vase showing on one side of the bowl the three Graces, on the other, the three Hours engraved in opaque color: the neck mounted with two richly designed bronze handles.

Nos. 13 and 14. Carved Ebony Sideboard.

The pedestal with set of drawers and side cupboards. — The back of the upper part is highly polished, as are also the chamfers and plain mouldings, the veins of ornamental leaves, the beadrolls, flowers, and knobs, everything else being left rough; the ornaments on the termination of the upper part, with the exception of the head in the centre are deeply incised, as are the little ornaments encircling the keyholes, and the thin stalks and tendrils of the foliage. If a more simple treatment is preferred, the ornamental mouldings may be left plain, and the fruit and dead game in the panels suppressed. For details see supplement No. 10.

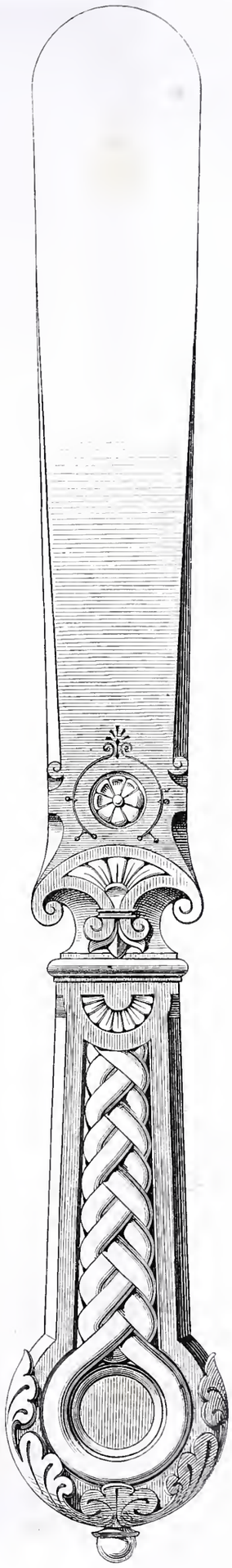


No. 17.

No. 18.

No. 15.

No 16.



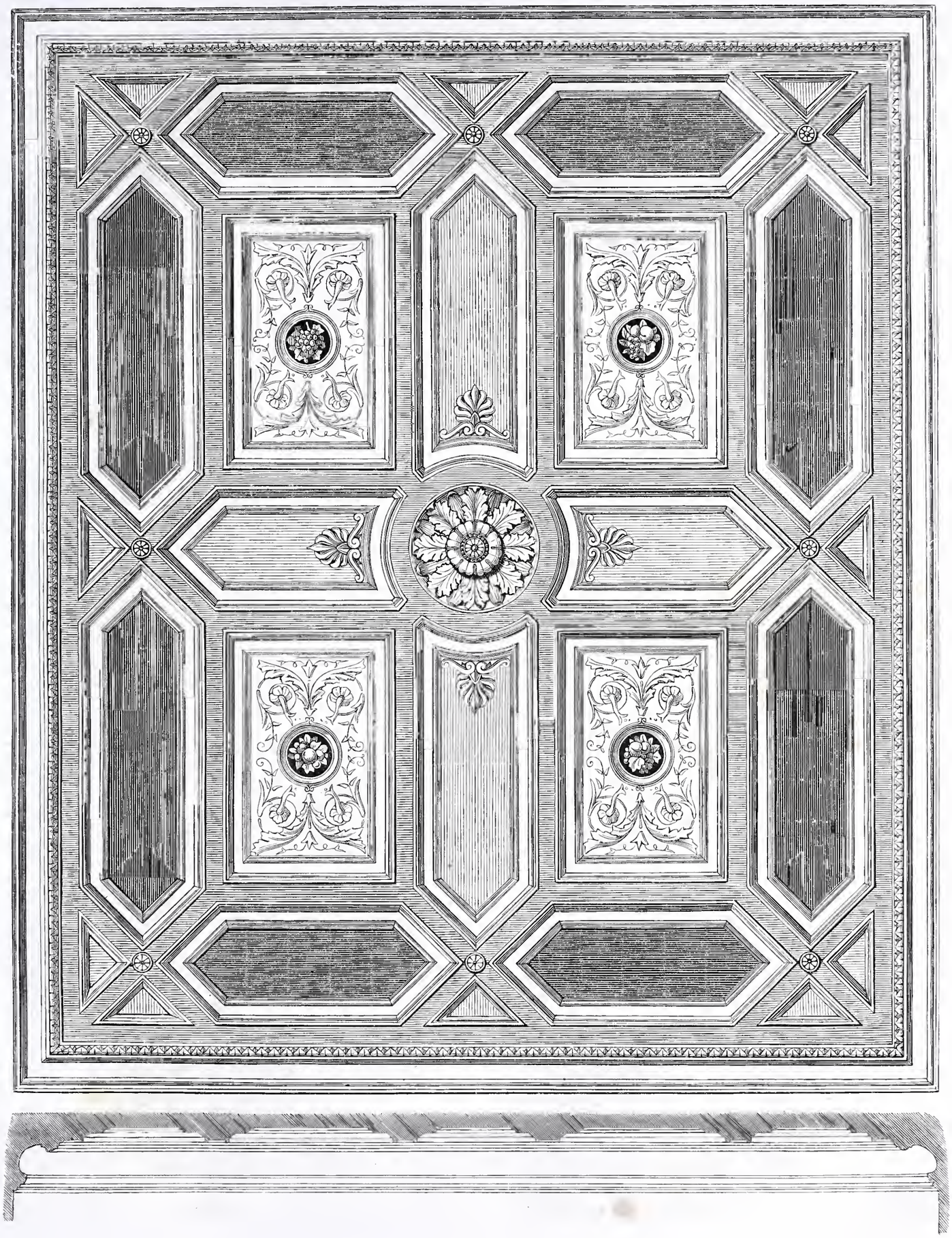
No. 19.

Nos. 15—19. Seal and Papercutters. The seal designed for execution in oxidated silver, is provided with a stone for engraving. The papercutter, Nos. 17 and 18, with similar conventional forms as the seal, has a handle also of oxidated silver and the blade of polished steel with inlaid gold ornaments. — No. 19, Carved in ivory or wood, assumes forms different in character, in accordance with the material.

No. 20.

No. 20. Modern Moresque Carpet woven in Jacquard loom.

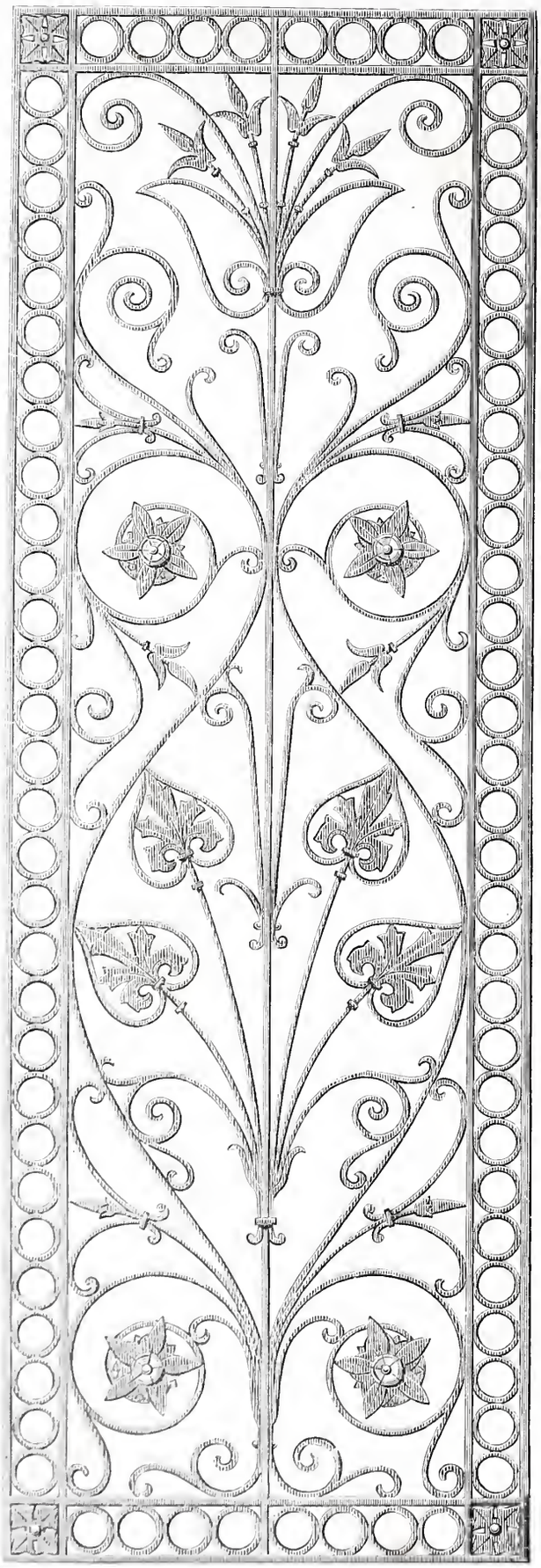
The ground of borders and centre piece is red with ornaments in buff, framed in yellow lines and blue corners represented by horizontal shading; the diaper pattern of the centre being buff with blue lozenges on black ground.



Nos. 21 and 22.

Modern Ceiling in Stucco for a dining room.

The ceiling, in imitation of different woods, is painted in blended brown tints relieved by gold. The fruit pieces arranged in four medallions, are painted on gold ground, in various colors, according to nature; the color of the walls is dark green — for details see supplement Nos. 5—9.



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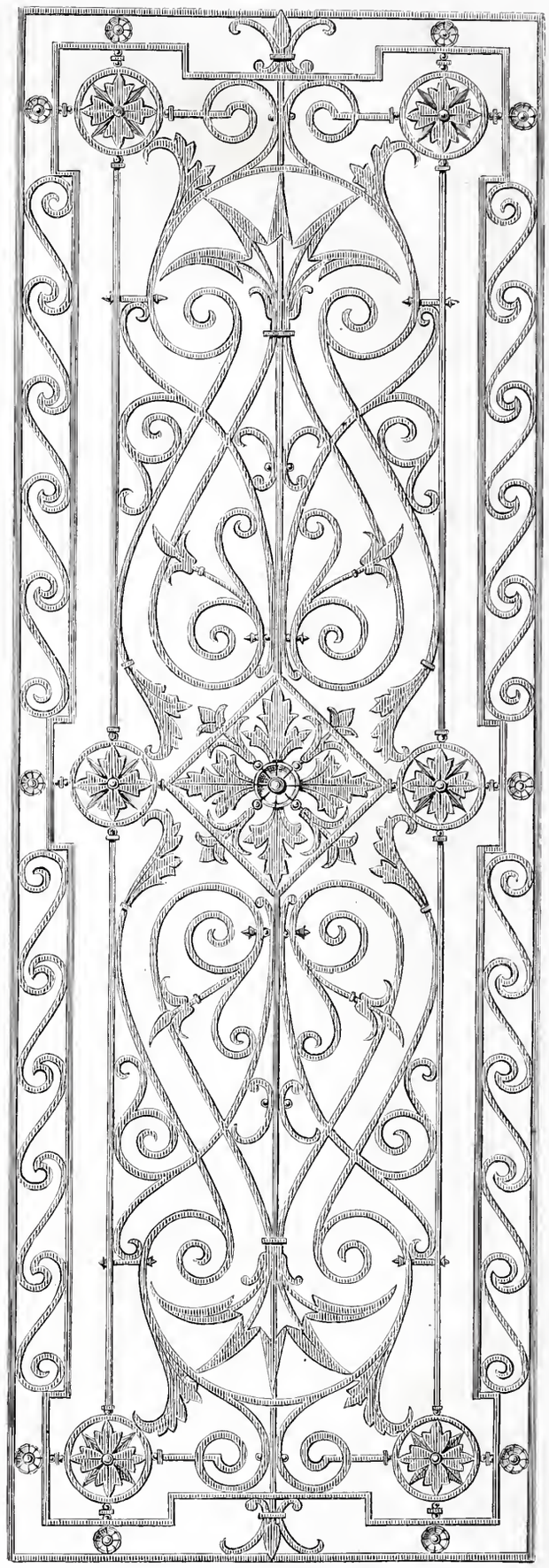
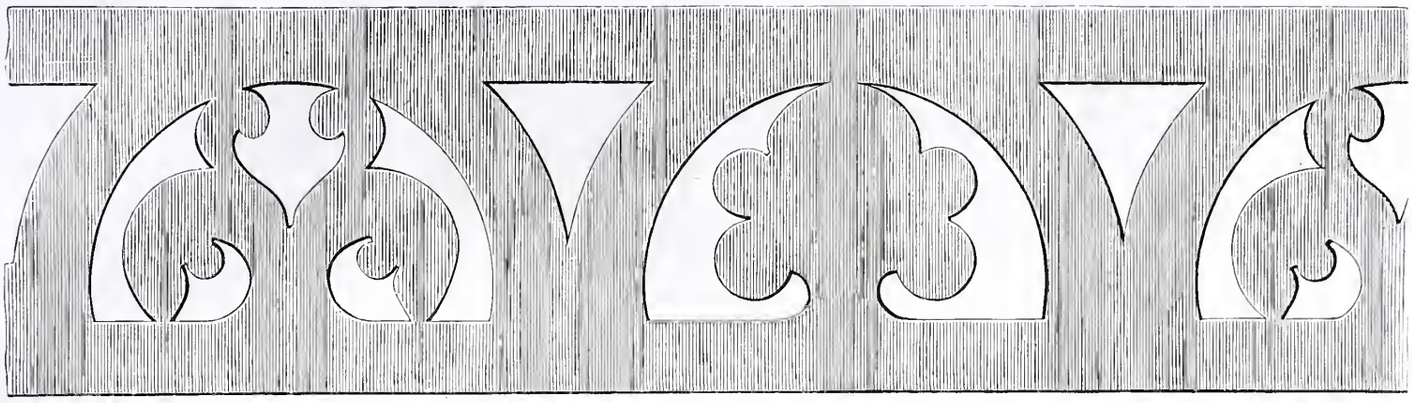


No. 24.

Nos. 23 and 24. Wrought Iron Grilles, with cast iron ornaments, for the upper glazed part of two folding house doors.



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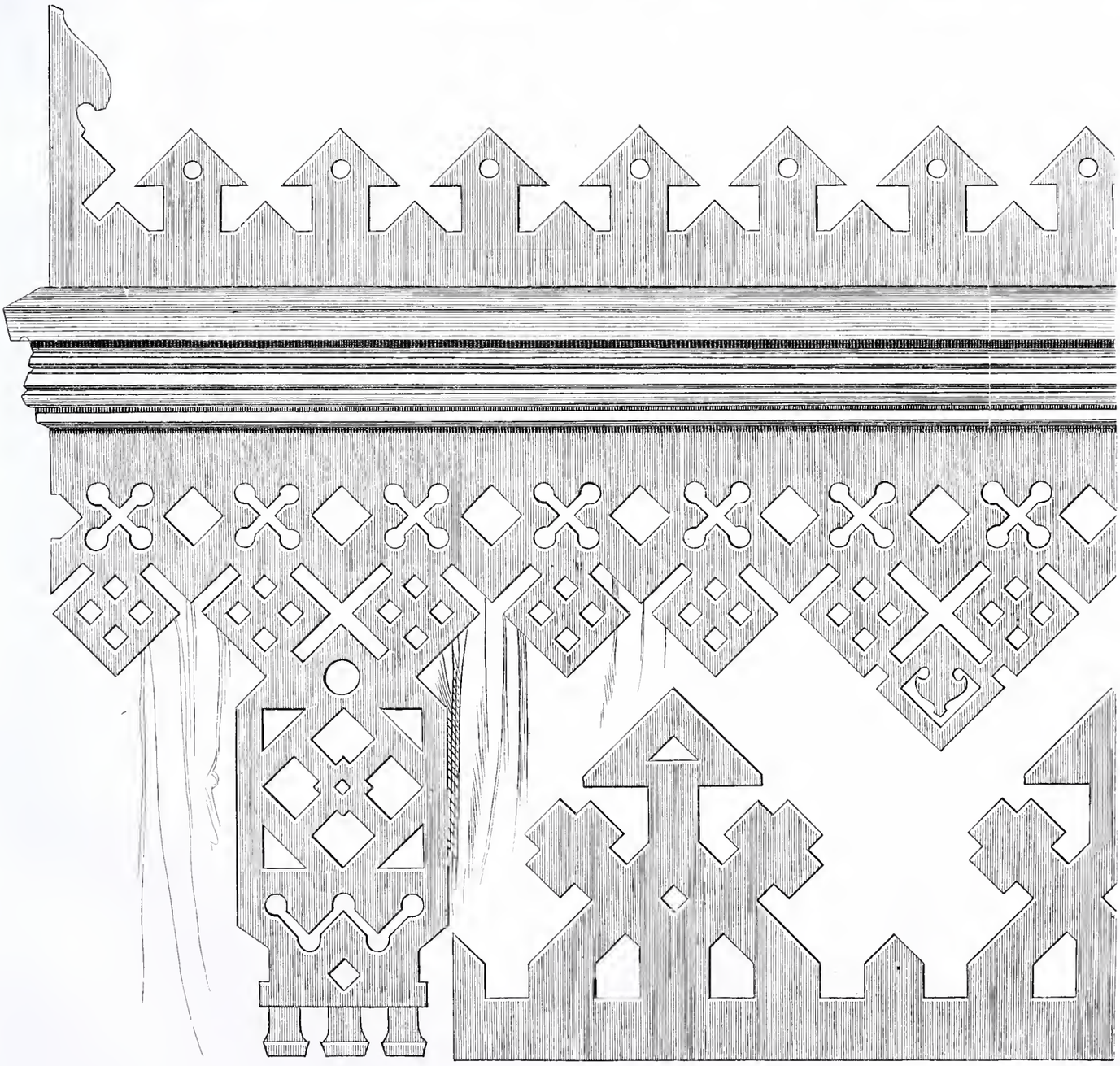


No. 26. No. 27.

From the Paris Exhibition.

Nos. 25—27. Specimens of simple Wood sawings; 1/4 of real size.

No. 25 is an Ornamental Cresting of the Norwegian, No. 27 of the Russian Section, and No. 26 shows the Ornamental Termination crowning a door of the Russian Section.

No. 28.

No. 30.

No. 29.

No. 30.

Nos. 28—30. Modern articles of Jewellery, Bracelet, Brooch and Ear-pendants with mounted Cameos. For Cameos Corals, Amethysts or other stones may be substituted.

VARIOUS.

Archæologic Excavations at Rome.

A treasure-trove of uncommon value was obtained, a few weeks ago, through works of excavation below the garden of the convent attached to SS. Cosmoe Damiano, the church on the Forum. Here have been found, at considerable depth, eight additional fragments of the famous Pianta Capitolina, the plan of Rome incised on marble, referred to the times of Septimius Severus or Antoninus Caracalla, and believed to have formed the pavement of that temple; other principal portions, brought to light near the same spot in the sixteenth century, being now in the Capitoline Museum (hence the conventional name), where they occupy twenty-six compartments set into the walls of the chief staircase. Of these newly discovered fragments two are large, comparatively speaking: among the smallest and most valuable of the others is one on which we see the well-nigh complete plan of the Portico of Livia on the Esquiline Hill, an oblong parallelogram surrounded with a double colonnade, and containing, at its centre, what seems a small temple within its sacred enclosure, also a parallelogram, the name »Porticus Liviae,« preserved in large letters on the surface. The fragment next in importance presents an edifice recognisable as a basilica, divided into three aisles by colonnades, and with a hemicycle at one extremity, but no name here preserved; the other portions are likewise wanting in respect to names, but on one are the letters A Γ, on another N alone left. These marbles have been lithographed and will be eventually placed beside their companion-pieces in the Capitol. The same diggings behind the church on the Forum brought to light considerable masses of brickwork, and remains of a corkscrew staircase, that obviously pertain to the adjacent basilica, called after Constantine, though built by Maxentius, the three enormous arcades of which are so grandly conspicuous. (The Builder.)

Coat of oil on Cement.

A durable coat of oil on cement may be obtained by painting the surface three or four times with acetic acid, before giving the coat of oil.

Galvanised Iron Cisterns.

Recent experiments conducted by the French Government show that the water-tanks on board a ship should be coated inside with tin, and not with galvanised iron, as at present. It was discovered that the water, under certain various conditions, dissolved the zinc off the iron, and rendered it injurious to health.

New Museums for Art and Industry.

In Dresden, serious consideration, caused by the experience made at the Paris Exhibition, is now being bestowed on the plan for establishing a Museum for Art and Industry. In Cologne also they are about to found for the Rhenish countries and for Westphalia a Museum of Art and Industry with exhibitions and permanent Schools for Technical Education.

The Workshop.

A Monthly Journal, devoted to Progress of the Useful Arts

EDITED BY

PROF. W. BAUMER, I. SCHNORR AND OTHERS.

VOL. I. No. 2.

On the Structure of the Candelabrum.

(A comparative Study)

Intimately connected with the grand and imposing architectural productions of Roman Antiquity which excite the admiration of the present age, there are other creations closely associated with them, which exercise an almost equal fascination on the mind — those rich and magnificient Specimens of the Decorative Arts, such as Marbles, Implements of Bronze, etc., for the service of the Temple, or for Palatial and Domestic use, in which the artistic genius is allowed more scope for the development of its creative powers.

In these creations are strikingly revealed the refined taste for the beautiful, and the astonishing talent for composition existing among the Ancients. In their productions, all of which bear the stamp of great purity and beauty of form; we see the same idea again and again repeated, but with an ever varying expression of form, while the ornamentation, never frivolous or misplaced, always seems to spring spontaneously from some innate necessity.

But, notwithstanding this exuberant richness of ornamental forms, a careful and wise economy of them may be remarked in every single specimen of the class to which it belongs. Amongst these specimens the Candelabrum occupies a conspicuous place in a practical as well as in a decorative and artistic point of view. In the first sense, as a portable object for domestic use, it comes, somewhat altered in form, within range of the present wants and requirements of common daily life.

The small Bronze Candelabrum answers to our ordinary candlestick: the Temple Candelabrum becomes the more significative Paschal Candle Standard employed in the early Christian, and ever since in the Roman Catholic Church, or serves in modern times for the embellishment of public buildings and squares. Not exactly designed as a means of support, the candelabrum seems chiefly intended for the mere reception and elevation of the light. In accordance with this, and its more subordinate purpose, viz., to serve as a means for transmitting and giving support, three important structural features are to be distinguished, the Head, the Stem and the Base, together with their connecting and subordinate parts, such as fillet, bead, etc. The head, with its boldly projecting cup of foliage crowning the whole; the vertical and cylindrical stem, as an intermediate vehicle of transmission; the base, bending as it were under its weight; — all three appear equally well calculated to subserve their respective purposes, and give to the candelabrum in its entirety a truthful and characteristic expression of form.

Thus, in order to convey the impression of stability, the Antique Bronze Lamp Standard rests on three boldly extended claws, combined with honey-suckle or other types of conventional or natural foliage (Figs. 1 and 2). From these, as a means of support corresponding to the perfect elegance of its termination, springs the shaft in the shape of a slender fluted column, or rather stem, throwing off ornaments more or less rich which cling round the bell of the capital, on the top of which rests a large tile or abacus carrying the lamp which is never a fixture (Fig. 3). A group of elegant leaves round the lower end of the shaft, and in like manner an appropriate ornamentation of foliage or architectural mouldings on the necking, form graceful transitions between the base, the shaft, and the bell of the capital.

Essentially different in its structural features is the Marble Candelabrum; the difference in material, as well as in purpose, demanding more earnestness and dignity both in conception and expression.

The foot, exhibiting greater massiveness and solidity, is formed according to the shape of the trilateral, and

less frequently the quadrilateral pedestals which were formerly much in use, especially for tripods. The three planes are enriched with ornaments in relief, their lower angles resting on lions'claws attached to the busts of sphinxes, the upper corners decorated with heads of sacrificial animals. The shaft, connected with the pedestal by finely designed horizontal mouldings, rises in elastic and delicate contours — the curve not dissimilar to the general outline of vases — and terminates in a decided cup or vase of bold design. (Figs. 5 and 8.)

In a comparative study of analogous art-productions of later periods we find only the masters of the Renaissance showing, in their creations, ideas and forms closely associated with the antique. Greatly attracted and animated by the works of the Ancients both in Architecture proper, and in the Decorative Arts, and keenly appreciating the Genius revealed in the creations of Classical Art, we see them earnestly and intelligently endeavouring to make the most of the inheritance received form their predecessors. Always original in the structural features of their compositions, they derive only the form of expression from the Antique, borrowing or imitating its details. In these their works are equal to those of Classical Art, while in many examples the artists of the Renaissance surpass their predecessors in exuberance and richness of composition.

The Marble Candelabrum of the Renaissance is designed in strict accordance with the laws observed in that of the Antique. There are the same three structural features as true expressions of the same three purposes they have to fulfil. On a triangular or square pedestal rises the delicately curved shaft terminating in form of a cup.

The Bronze Standard compared with its antique model undergoes a change in the structure of the shaft and foot, this being an inevitable consequence of another form given to the head, a change which in its turn is rendered necessary by the introduction of a new source of light — the candle — instead of the lamp. Th foot, in adaptation to these new statical and aesthetic characteristics, is rendered more massive by being less pierced (Figs. 6, 7, 9 and 10); while the shaft takes a curve similar to that of the Marble Candelabrum. From the latter also is derived the magnificent Bronze Candelabrum, or Paschal Candle Standard, marked by rich statuary decorations, and a pompous prodigality of ornament. In oppositions to the antique, we now find the lamp, when it appears combined with the candelabrum, no longer moveable as observed above, but firmly joined with it. Above the cup, finishing the shaft, rises the bellied vase (Fig. 4) carrying the light, thus enriching the termination by a double crown.

In modern times the discovery of gas gave rise to a new system of illumination demanding another constructive arrangement, but unfortunately we have not been quite so successful here as the Cinque-centists in a similar, previously mentioned case.

Seldom indeed do we find due consideration bestowed on the new characteristics to which an artistic and tangible form of expression should be given, viz., the impossibility of any displacement, the peculiarities of the burner, and the form of the shaft which this suggests in a certain degree. Our utilitarian mind is satisfied by merely adding, for this purpose, to the traditional models, a leaden conducting-pipe in the direction of the longitudinal axis, the burner in many cases taking the unmeaning and spiritless form of a candle-end.

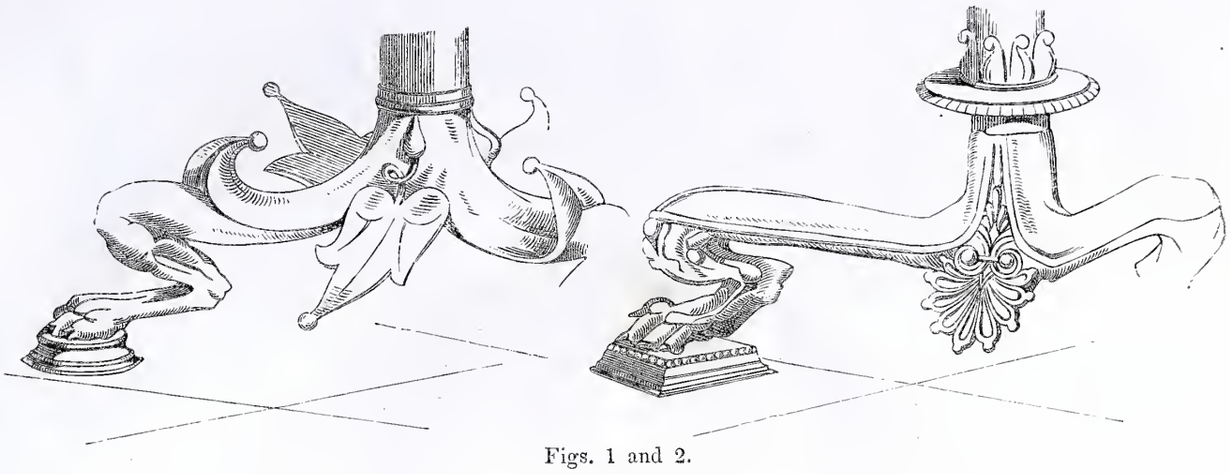
This most convenient but idle system of borrowing and adapting to our own purposes the already existing objects of art, and the consequent neglect, frequently observable in the prominent features of our works, of the old fundamental laws of common sense, of adaptation to the purposes the works have to fulfil, and of truthfulness of expression with regard to the requirements out of which they have grown; this building up, in short, of decorative forms without any clear appreciation of their aim and purport; this is the cause of so many unhappy productions in the Technic Arts during the last twenty or thirty years.

To all this must be added a prevailing tendency to experimentalise in all sorts of styles, a tendency, which resulting form an all-powerful Fashion, and subject to her ever-varying and capricious demands, is easily satisfied with the mere outward mask of a style, and thus renders impossible a clear unterstanding of the intellectual value of any period in Art.

To this platitude and uncertainty in questions of Style and Art we wish to oppose an earnest study of the works of our old masters in Art, the ancient Greeks and Romans. Imbued with their truthful spirit, the masters of the Renaissance applied themselves in earnest to elaborate the problems fallen to their lot into works most grand and successful. Under similar conditions we may be sure of similar results.

REFERENCES.

Figs. 1, 2 and 3 from the Museo nazionale, Florence.
Fig. 6 from San Lorenzo, Florence.
Figs. 5 and 8 from the Museum of the Vatican, Rome.
Fig. 4 from San Andrea della Valle, Rome.
Figs. 7, 9, 10 from the Museum of Bargello, Florence.



Figs. 1 and 2.

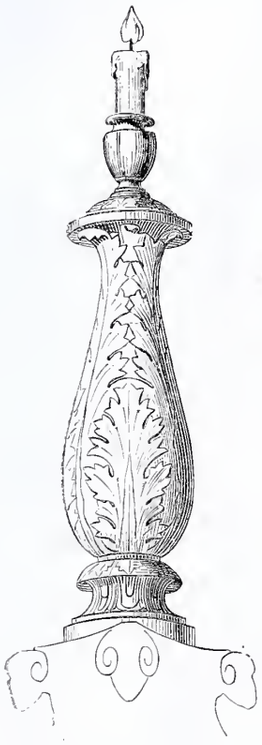


Fig. 6.

Fig. 3.

Fig. 5.

Fig. 4.

Fig. 7.

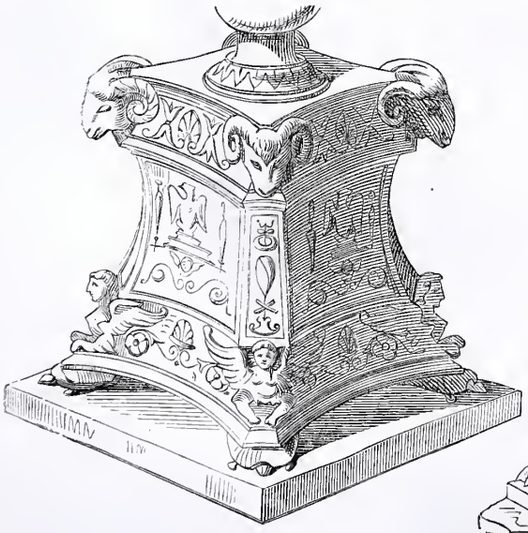


Fig. 9.

Fig. 8.

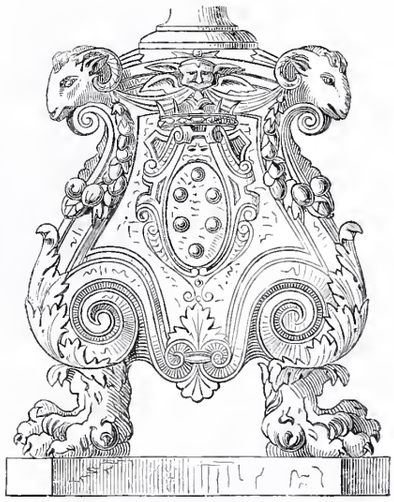
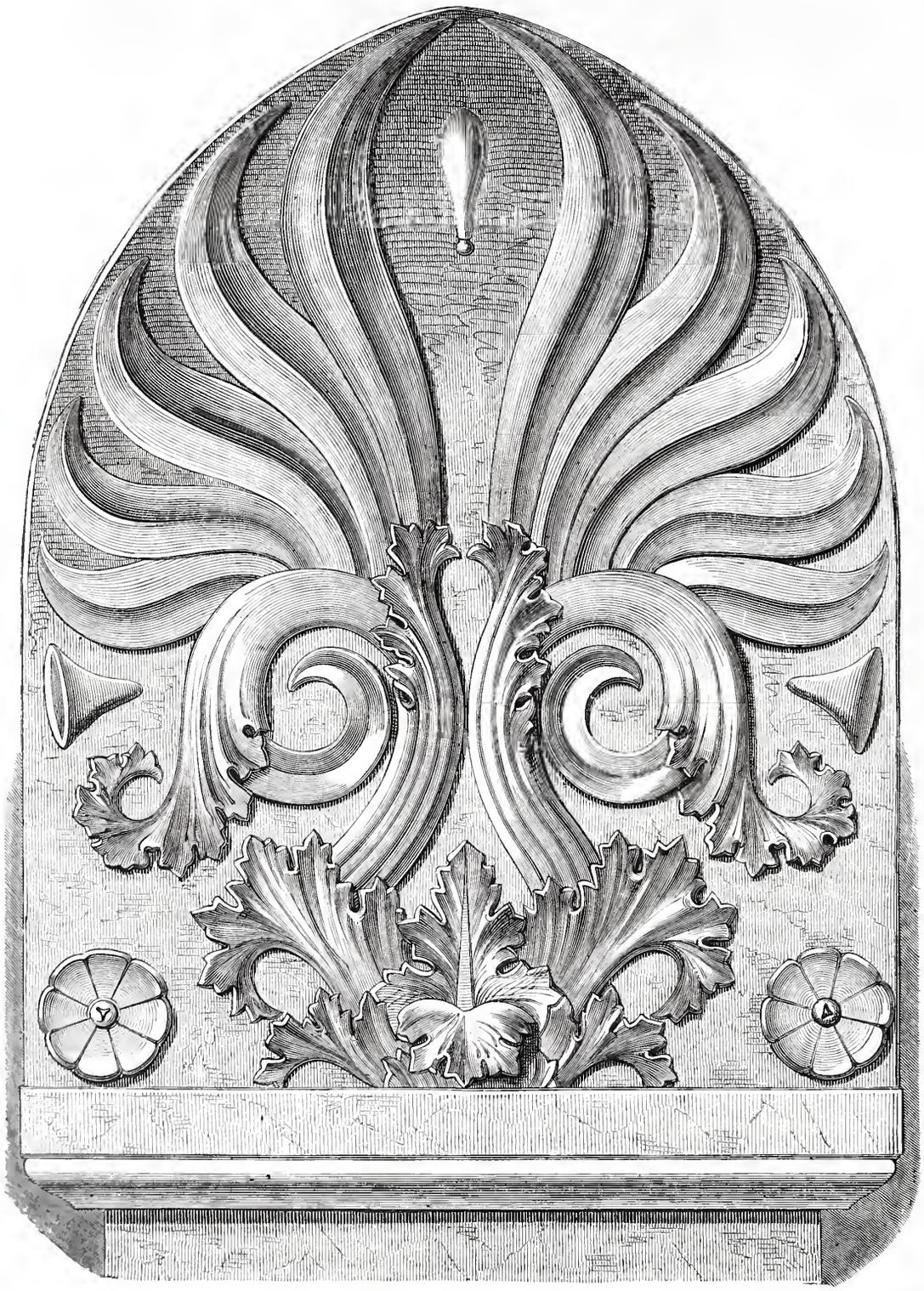


Fig. 10.

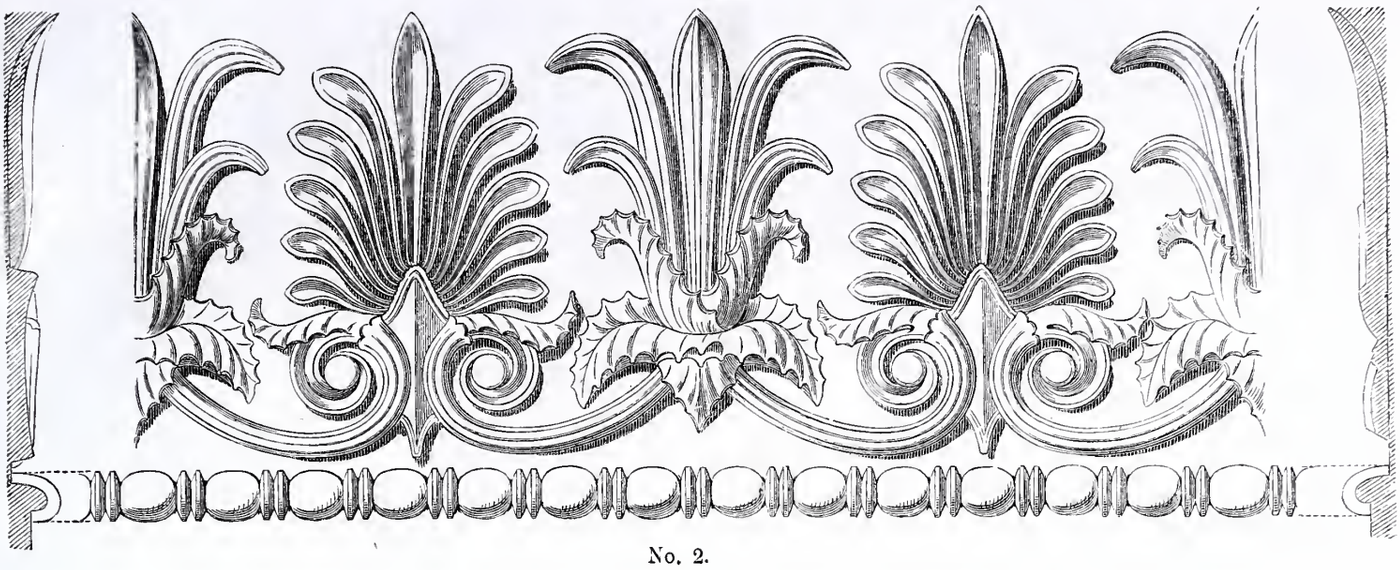
Specimens of Ornamentation.



No. 1.

No. 1. Upper part of a Grecian Memorial-Stone (Stele).

The Memorial Stone of the Greeks consisted generally of a slight perpendicular slab or pillar of marble, frequently bearing an inscription on the face. Flowers or cups in relief, commemorative of the offering, were also carved upon it. The upper part was always marked by a small cornice, an ornamental termination, as above, crowning the whole.



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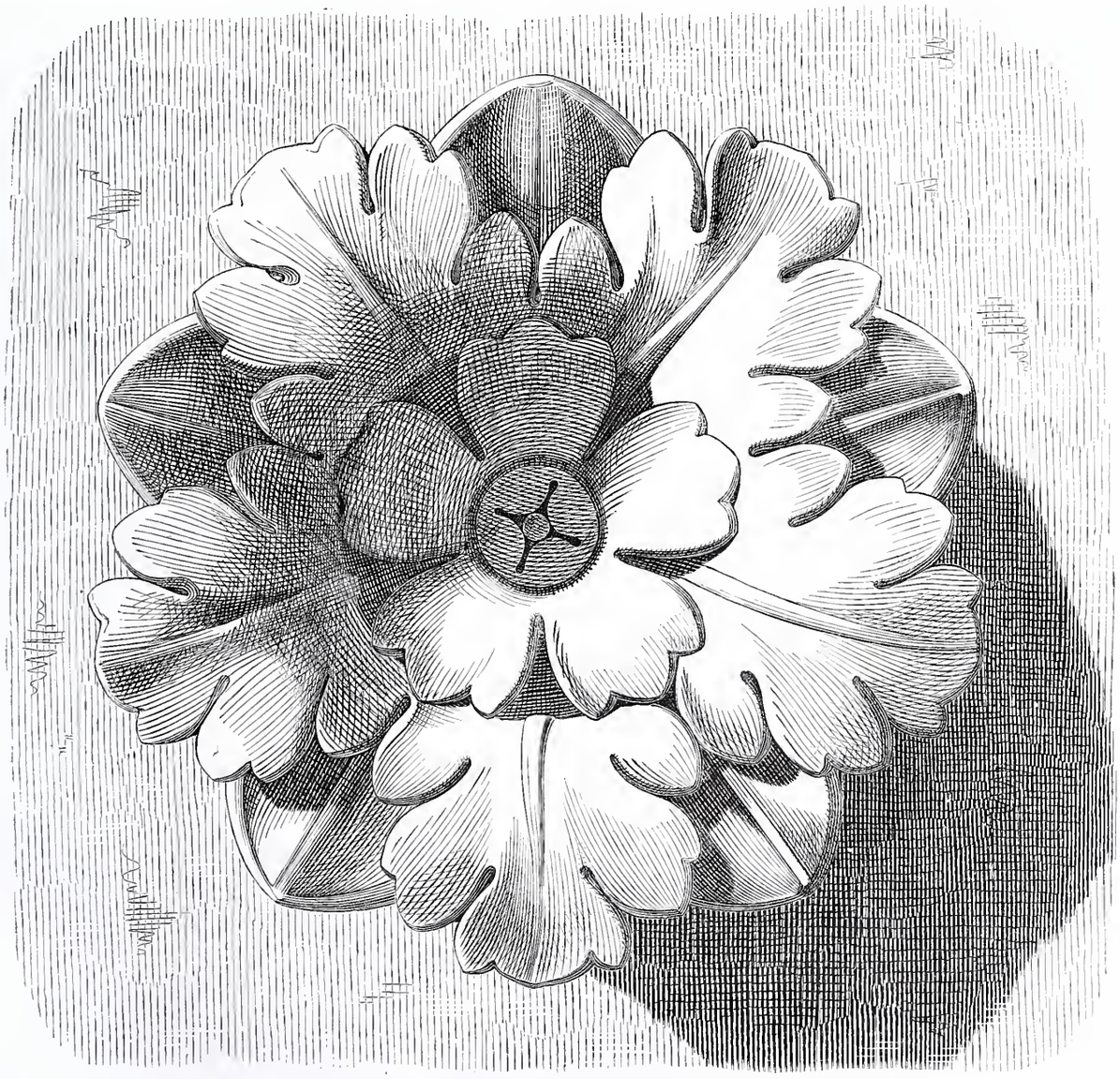


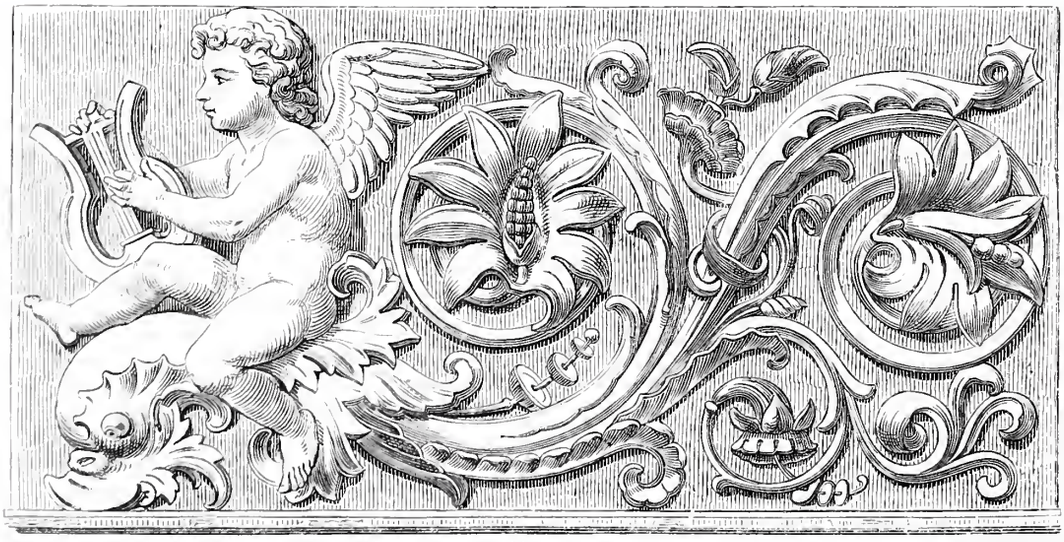
No. 3.

No. 2. Grecian Floral Ornament on the necking of the columns of the Erechtheium at Athens. To the left is the section through the honeysuckle, to the right the section through the lotus, clearly defining the profiles of the ornament.

No. 3. Roman flower.

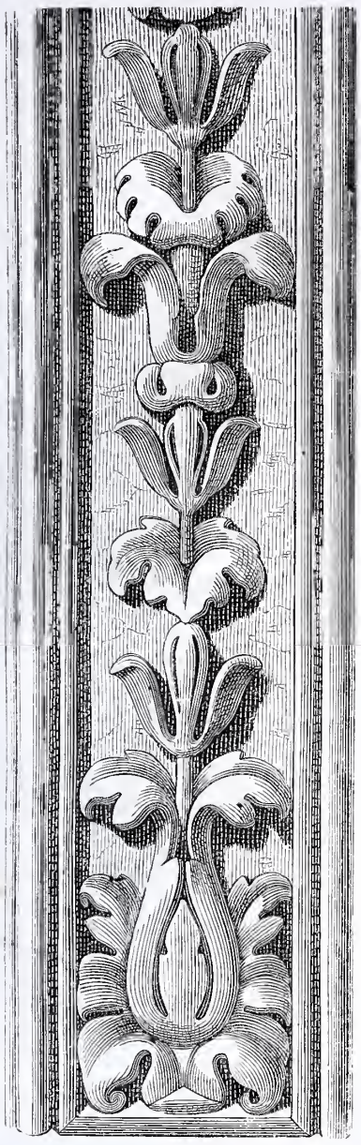
By comparing this with Nos. 1 and 2 we have an appropriate illustration of the distinctive characteristic features of Roman and Grecian ornament, the former being marked by great vigour of treatment, sometimes on the very verge of direct imitation of nature, the latter by that exquisite feeling and perfection of form beautifully conventionalised, which only the Greeks imparted to their designs.

No. 4.



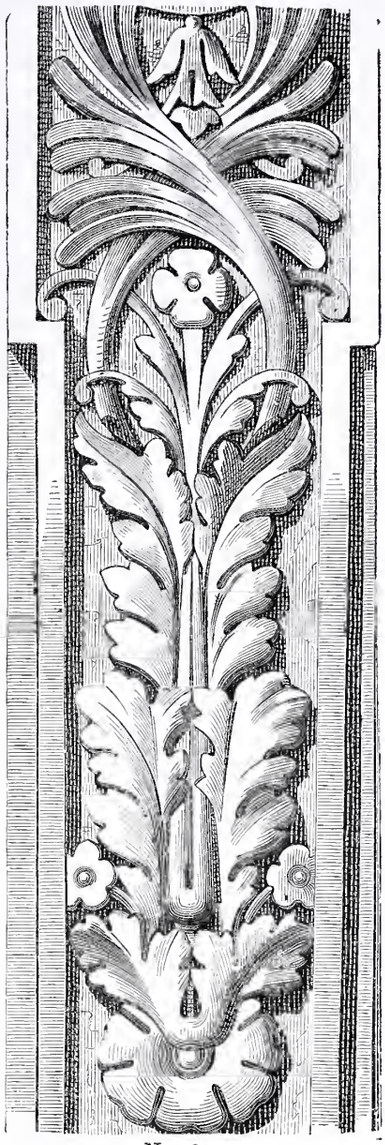
No. 5.

No. 4. Capital of a Pillar. Early Gothic Style. 13th century.
No. 5. Modern Ornamental Frieze, in stucco.



No. 7.

No. 6.



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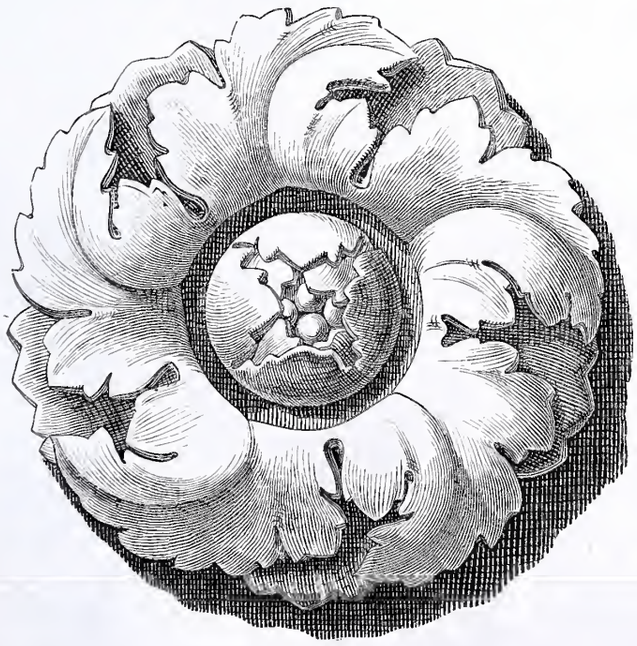

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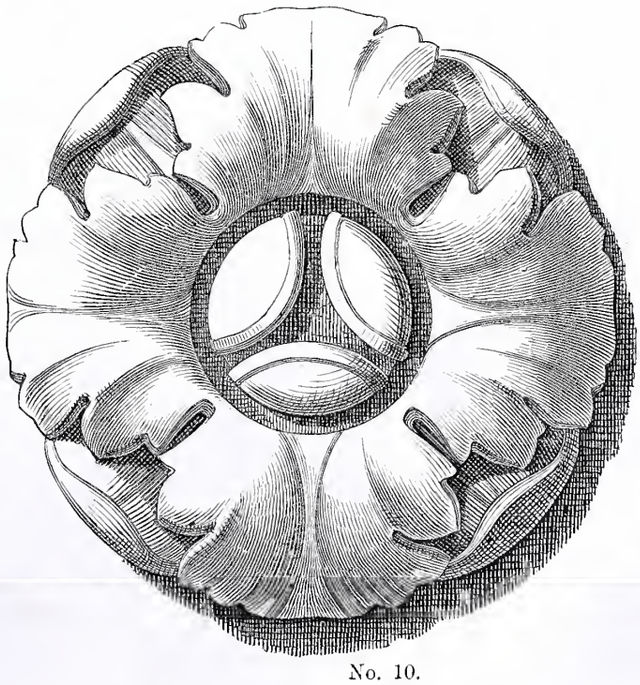


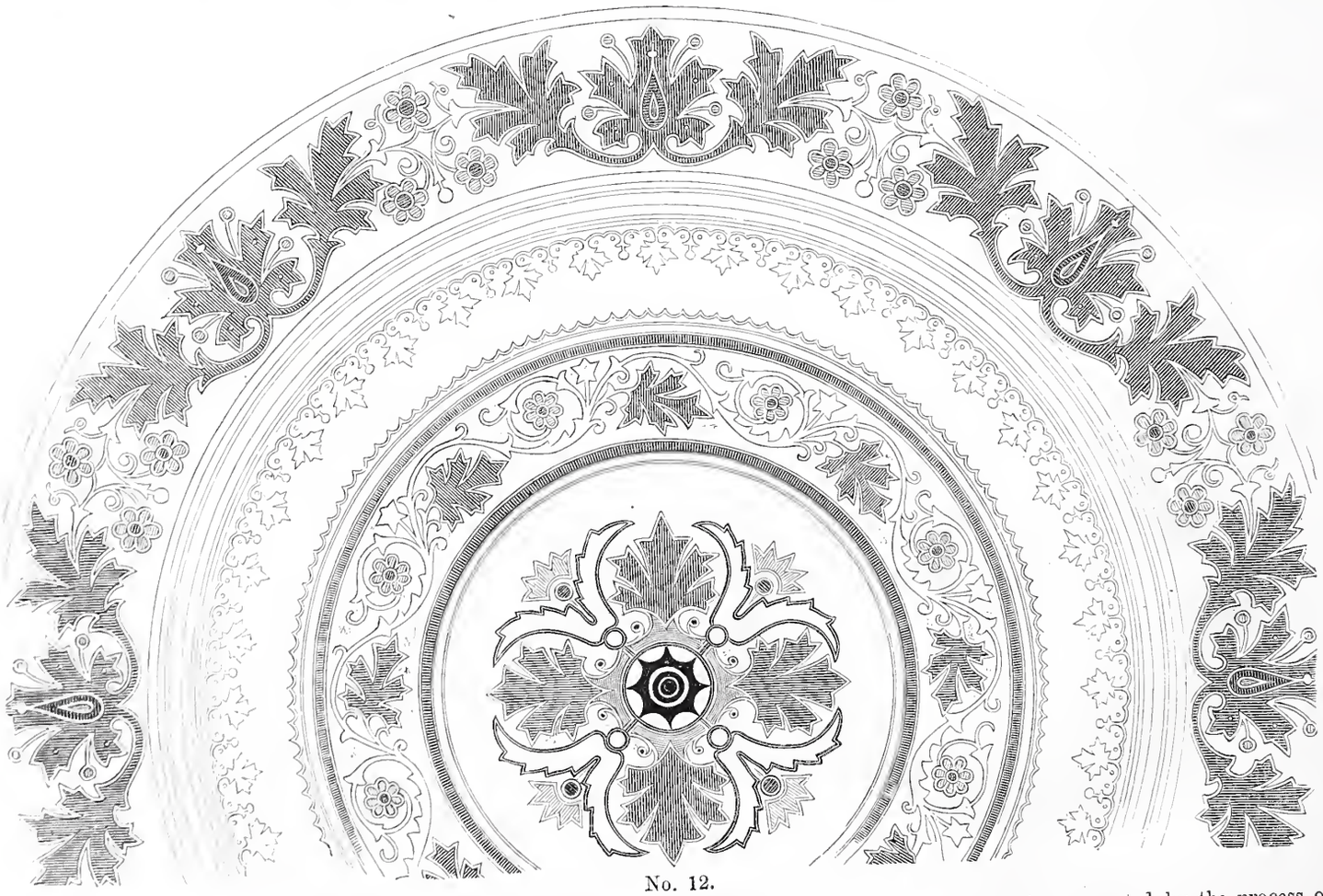
No. 10.

No. 6. Modern Lions' head, carved in stone, decorating the parapet of the Imperial Pavilion of the New Opera House, Paris. Ch. Garnier, architect (see No. 8, Part 1).

Nos. 7 and 8. French Renaissance Panels; style of Henry III. (1574—1589).

Nos. 9 and 10. French Renaissance Flowers; style of Louis XIII. (1610—1643). Here we perceive already a tendency to imitate the ancient Roman ornament, a principle afterwards, in the time of Louis XIV., generally adopted,

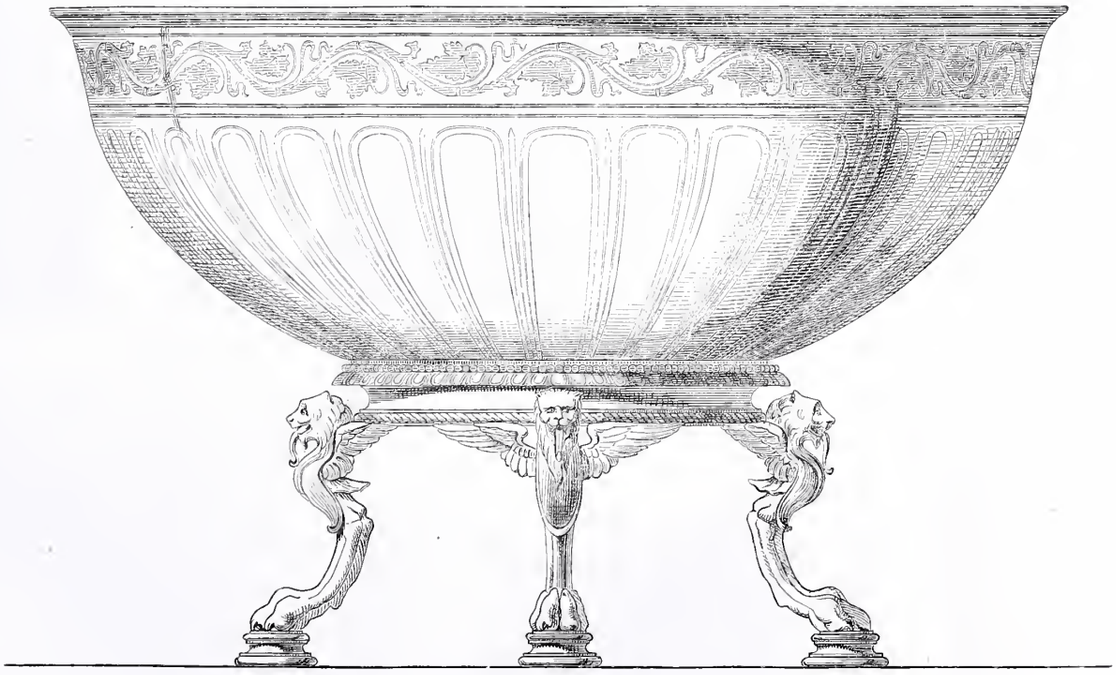
No. 11.



No. 12.

Nos. 11 and 12. Ornamental Details for the decoration of plates belonging to porcelain-service; executed by the process of Enamel-printing in gold and colors. — The colors are indicated in the drawings by three different shades: the flowers in light shading being blue, with red in centre, the leaves in darker shading, green with gold borders, and partly red in centre; the centre portion of No. 12 in darkest shading being black with red and gold, the parts left in blank representing gold.

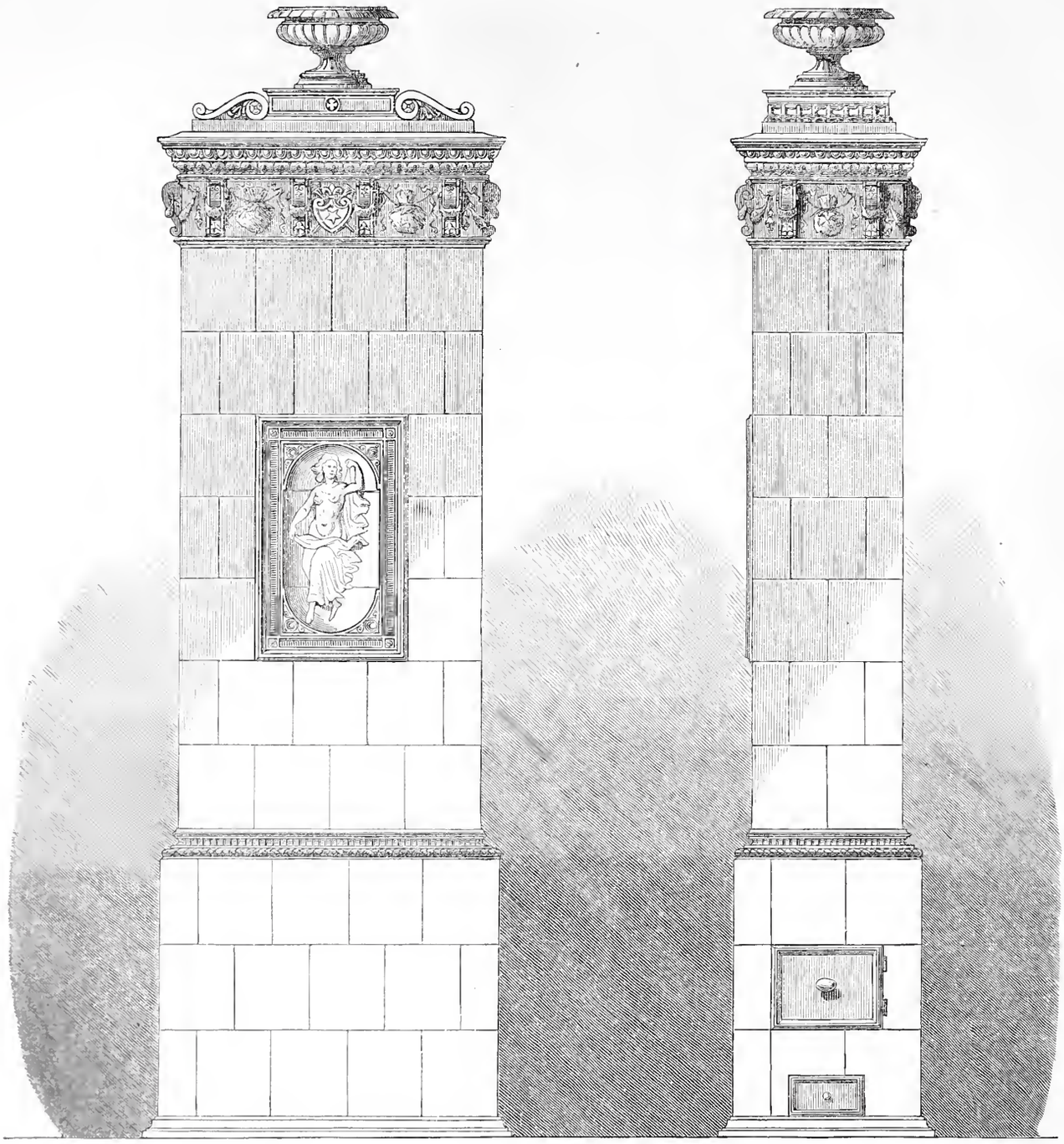
No. 13.



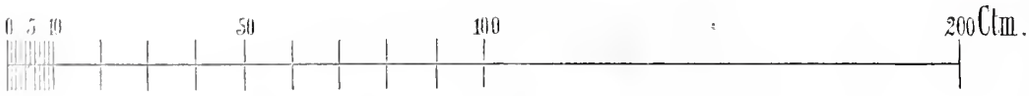
No. 14.

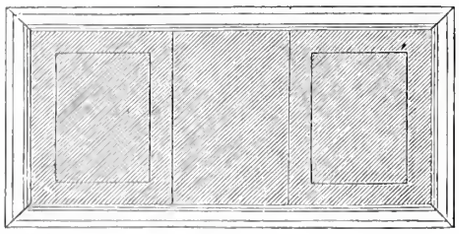
From the Paris Exhibition.

Nos. 13 and 14. Portion of a Dessert-Service, with bronze supports and dishes of engraved crystal, designed by Th. Hansen, Architect, executed by J. & L. Lobmeyr, Vienna.



No. 15. No. 16.





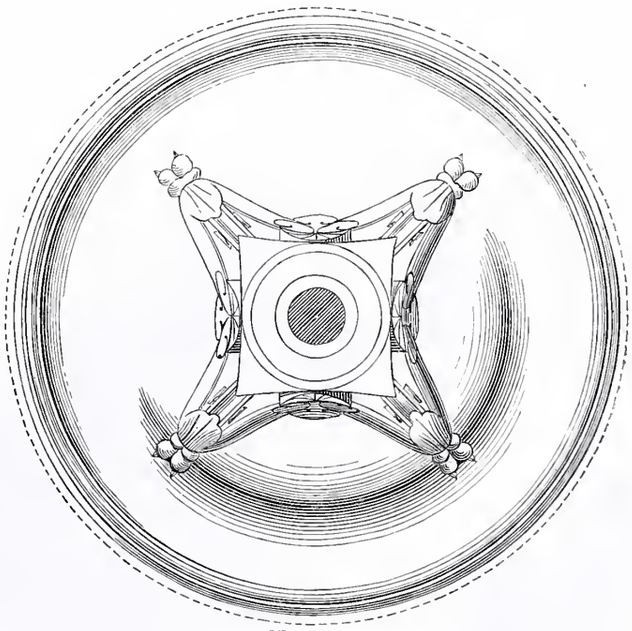
No. 17.

Nos. 15—17. Modern Porcelain Stove; front, side-elevation and plan.

For full-size details see supplement Nos. 1—4.

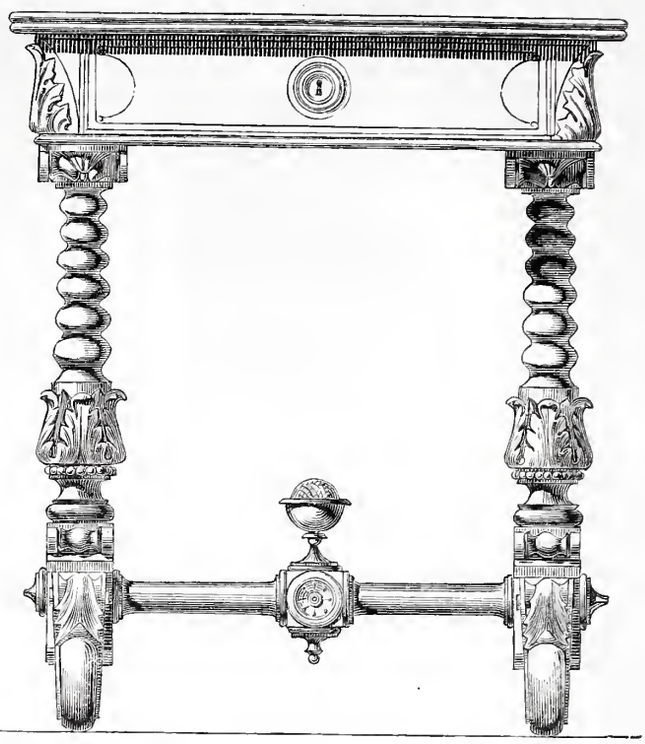
No. 18.

No. 19.



No. 20.

Nos 18, 19 and 20. Stick and Umbrella-Stand in ebony; elevation and plans.
No. 12 of supplement gives the necessary full-size details for this as well as for a more simplified article of furniture of the same kind.



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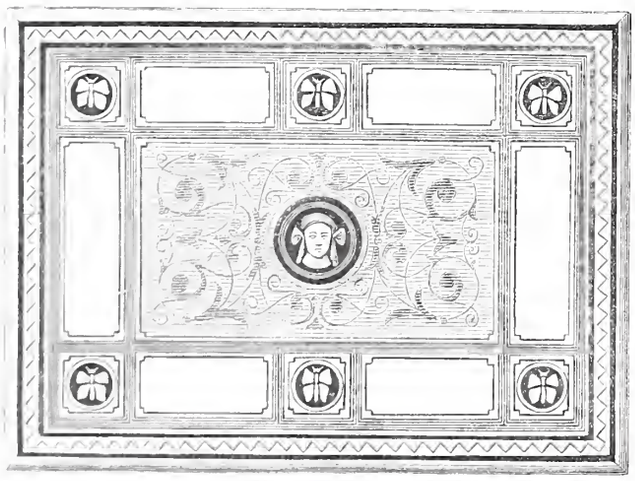

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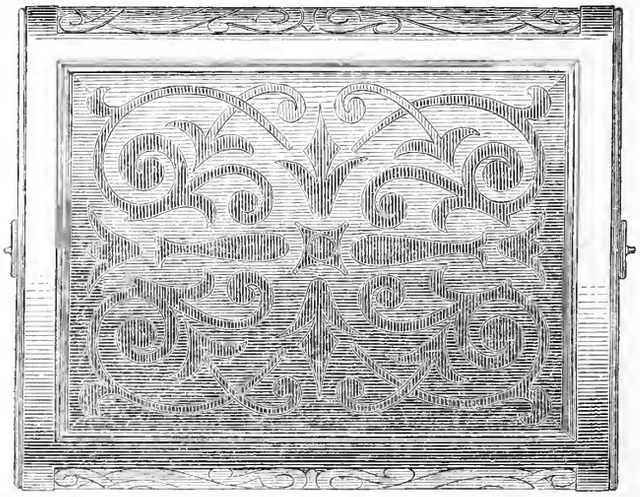

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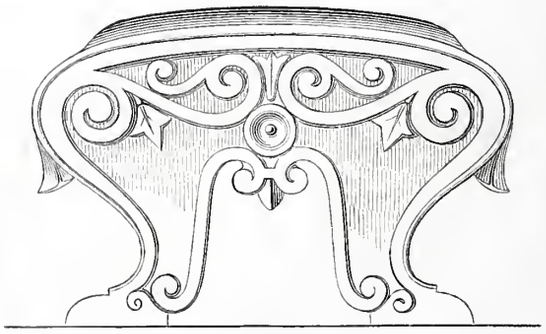
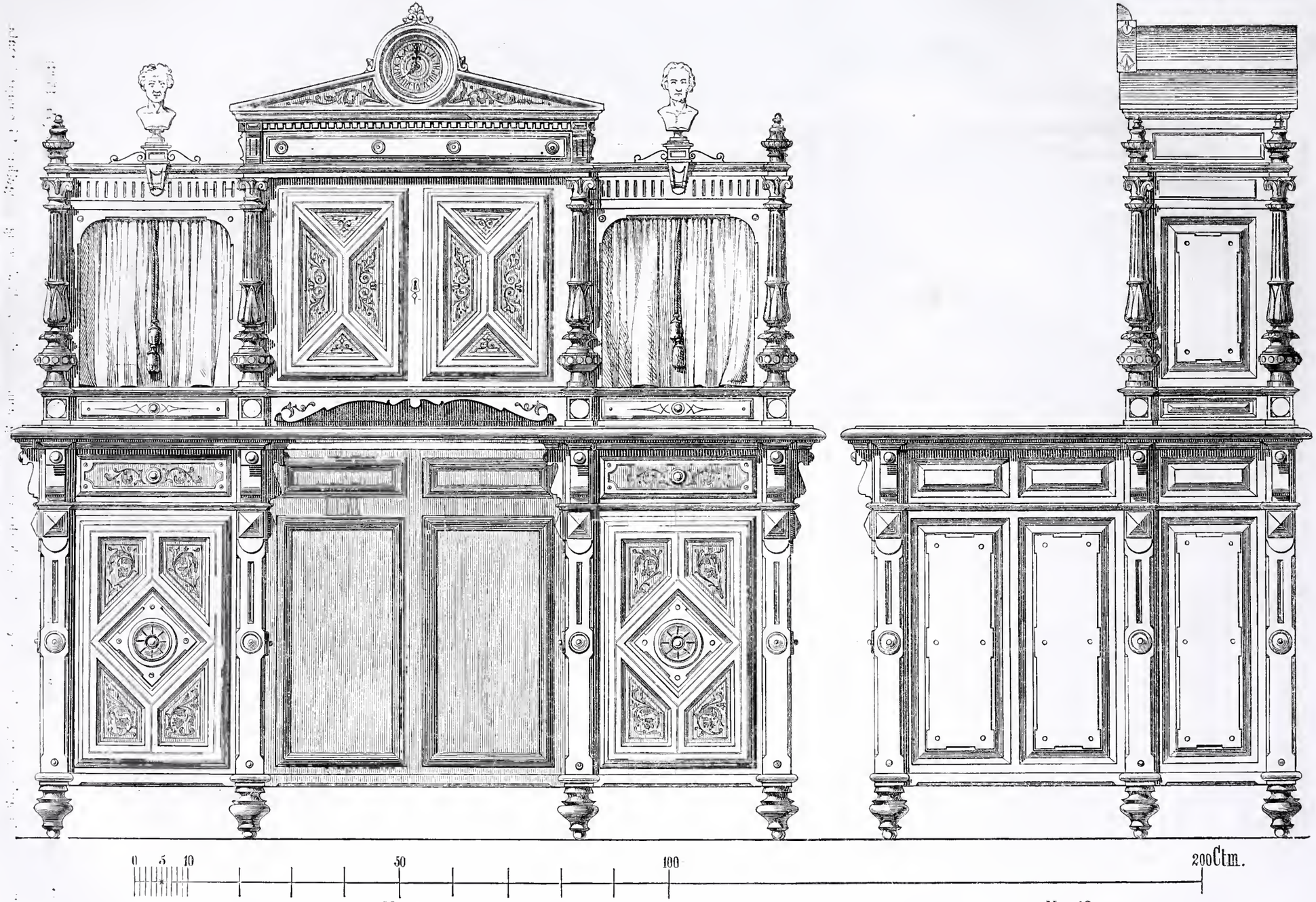
No. 25.



No. 26.

Nos. 21—23. Modern Walnut Work-table.
The slab enriched by inlaid work for which see Nos. 5—9 of supplement.

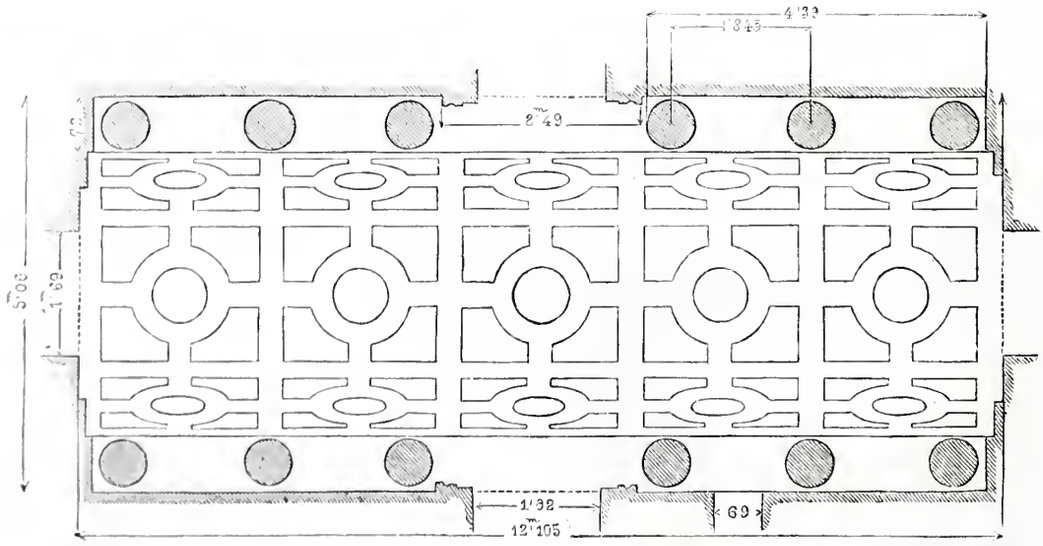
Nos. 24—26. Walnut Foot-stool with embroidered covering.
For full-size details see Nos. 10 and 11 of supplement.



No. 27. No. 28.

Nos. 27 and 28. Modern Library table; front and side elevation, to be executed in oak, the panels in an other darker wood, lines and ornaments inlaid, or if painted, the colors are dark brown and gold.
For details see Nos. 13—20 of supplement.

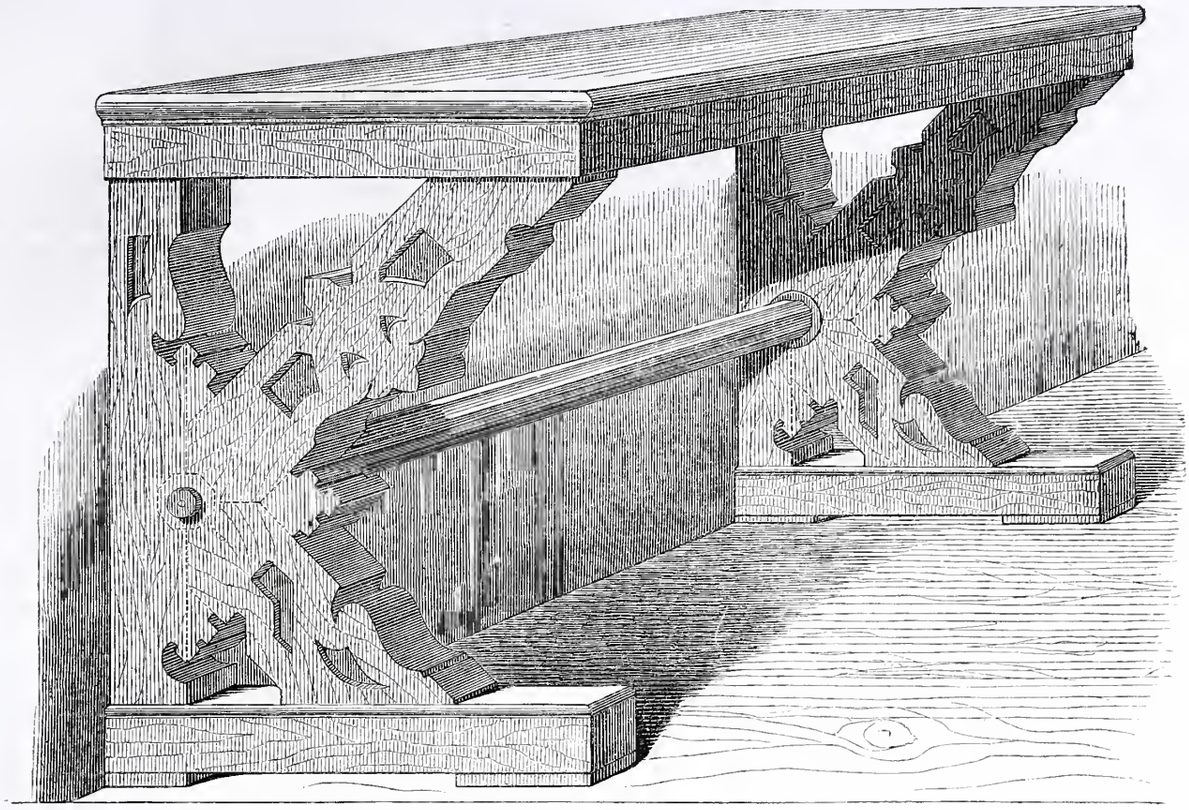
No. 29.



No. 30.

No. 29. Compartment of a Waggon vault over Corridor of Sacristy, San Spirito, Florence by Andrea San Sovino (ob. 1529).

No. 30. Plan of rectangular area of the above corridor with the surmounting semi-circular vault showing altogether 15 compartments. The mouldings compared with the Renaissance sculptures of the spandrils are very vigorous.



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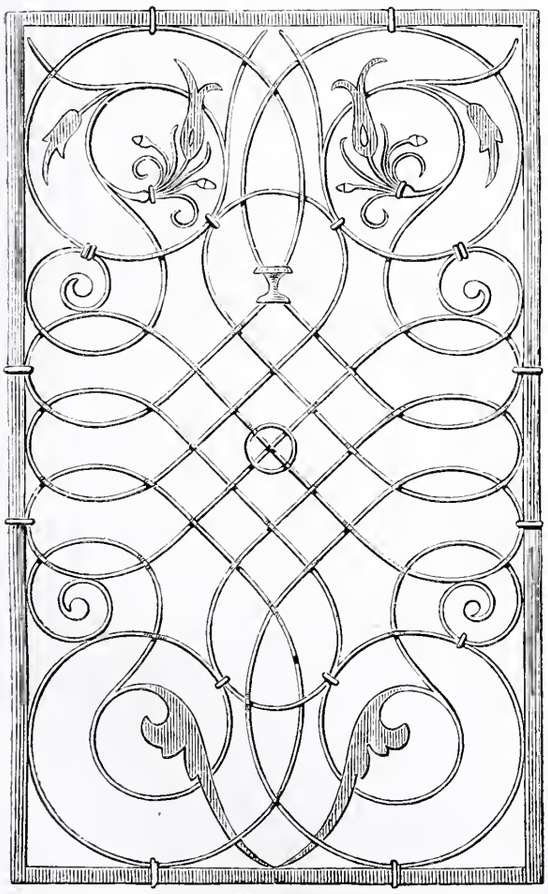

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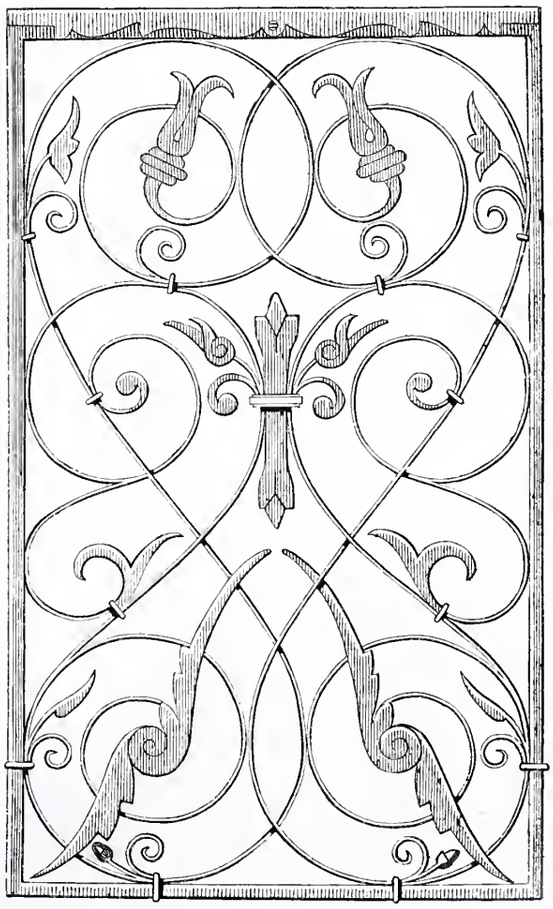


No. 33.

From the Paris Exhibition.

No. 31. Side table (Russian section), designed by M. Bénard, Architect, Paris. executed in deal at St. Petersburg, scale $^1/_{10}$ of the real size. The horizontal piece joining the 2 legs, besides being fastened to the 2 sides by dove-tail tenons, is fixed to them by a brass-screw.

Nos. 32 and 33. Wrought Iron Grilles of Strahow Monastery, Prague, late Renaissance style.

VARIOUS.

Origin and Signification of Winged figures in Grecian Art.

Many of the different figures in Modern Art particularly Angels, are represented with wings which, though now familiar to our eye, are by no means an invention of modern time. To Angels for instance they are not given from any religious or philosophical reason, nor in order to express any of the attributes ascribed to them; they have originated directly out of the customs of Grecian and Roman Antiquity.

It was quite contrary both to the religious and artistic feeling of the Greeks to represent their chief Gods with wings, an element quite incongruous to the human forms under which they were generally portrayed. In the East, the Gods were endowed, not only with wings, but also with other symbolic additions from the animal kingdom, for there, besides winged male and female figures, we see bulls and lions with human heads, an addition quite foreign to their nature, and on the other hand, human beings represented with heads of lions, eagles, etc. — The Greeks however gave expression to the Glory of their Divinities by what came nearest to their ideas of perfection, viz; by the human form only, without symbolising their superhuman attributes by any form foreign to the human, or by any element incongruous to its nature.

Wherever we find anything of the kind, as in the single instance, of the Goddess Artemis, direct oriental influence and tradition may be inferred.

Still, the more ancient style of Grecian Art, principally known to us through the images adorning the terra-cotta vases, improperly termed »Etruscan Vases« does not disdain to provide with wings some of the more subordinate beings of the superhuman sphere, whose province it was to bring danger and destruction to man. Here the wings were illustrative of the wind-like and inevitable swiftness with which they overtook their victims, and the more so, as destruction, threatened by these beings, is also represented by other creations of the imagination, equally foreign to the beauty of the human body, as for example by the Gorgons, Eris, the Goddess of contention, the Demons of Death, and partly the Harpies.

Besides these, the more ancient Art added wings to some other beings, not invested with destructive power against mankind, only in order to display by some outward sign, the amazing speed ascribed especially to them. Such is the case with the Deities of the wind, with Iris the messenger of the Gods, with Eos or Aurora, with the winged Horses, the latter perhaps originating from oriental precedents, and afterwards adopted by the Greeks for Deities of the Sea, and of the Sun, in order to illustrate the rapidity of chariots and of the Sun. In like manner we often see Triptolemus, the Father of Agriculture, borne over the Earth in a light Chariot, with wings attached to the wheels. On the other hand, Hermes, one of the highest of the Olympian Gods, although like Iris, mediating between Heaven and Earth, was never represented with winged shoulders, the great swiftness by which he is distinguished finds limited illustration in winged shoes, and later in a winged hat.

From the 6th century before the Christian Era we find the wings assuming an allegorical rather than a natural meaning. At this time Nikè, the Goddess of Victory, closely associated to Athene, is provided with wings, for the first time probably at the island of Chios. The idea here is not, as in the old winged figures, Rapidity, but Fickleness or Caprice, now favoring one side, now another. — So likewise the God Eros, in all probability was represented with wings about this time. For the same reason other incorporations of Ideas significative of the Mutable and Transitory, such as Opportunity (Kairos), Wealth etc. were furnished with wings.

The more figures of this kind were multiplied, the greater the variety introduced among those already existing, and the more frequently, they were represented in plurality, instead of unity, so much the less apparent becomes the real allegorical meaning of the wings, until at last they sink to a merely external and arbitrary sign distinguishing the superhuman from the human. Originally an attribute of unparallelled rapidity of motion, afterwards an allegorical expression of the Transitory, they became at last simply a Symbol of Divinity. In this sense early Christian Art has adopted the youthful winged figures of the later Greco-Roman time — the so called Genii — and changed them into Angels, those Divine Spirits peculiar to itself, a practice that has continued to our own time.

Preservation of Stone.

»The Builder« in a report of some remarks made on this subject by Mr. George F. Ansell at the Dundee Meeting of the British Association states that the best plan for preserving stone would be, in his opinion, to exhaust the air from the wrought or »worked« stone or marble by means of an air pump, as in the case of »creosated timber«, and then to introduce that dense gas which is known as ter-fluoride of silicon. Mr. Ansell stated that he would operate upon the stone when fitted for its final position, whether as statue, block, or moulding, and expressed an opinion that a stone so treated would become one solid mass of insoluble substance, upon which the atmosphere would have no influence and that in fact marble so treated would become as permanent as granite, without loss of color. The action of the gas would be as follows: when the stone had been exhausted, as the term is, it would represent a kind of sponge, the pores or interstices of which the ter-fluoride of silicon would permeate, so that the stone would become saturated with that dense gas instead of with water and air as it usually is. As soon as the stone thus prepared should come into the air, the moisture of the atmosphere would act on the ter-fluoride of silicon, and mutual decomposition would ensue, one result of which would be to fill the interstices of the stone with pure silicic acid, better known as sand; while the ultimate result of the other substance would be the formation of fluoride of lime, commonly known as Derbyshire spar. In the case of ordinary mortar it is well known that the sand under the influence of time, moisture etc., combines with the lime, and forms an insoluble silicate of lime: hence Mr. Ansell expressed an opinion that the silicic acid in the case proposed would also form a silicate of lime; and it will be seen that these changes are assumed to take place throughout the entire mass of the stone. Expense can hardly stand in the way of experiments in this matter, for ter-fluoride of silicon is readily obtained by boiling together washed sand, or broken glass, and Derbyshire spar in common oil of vitriol. The gas could be conveyed or collected in the manner used by chemists. According to Mr. Ansell, there would be little or no practical difficulty in applying this plan to completed buildings.

Mastic for Incised Stone Work.

In the Church of the Monastery of the Benedictine Order at Alpirsbach (Wurtemberg), are some incised sepulchral slabs, the lines being filled in either with lead, or with some black mastic, a resinous substance quite equal to lead in durability.

This substance, according to an analysis made, consists of colophony, mixed with finely powdered charcoal instead of color.

The boiling point of this mastic is about 50° R. (145° F.).

Great Art Exhibition at Berlin.

A great exhibition, which means we presume an international exhibition of Art is announced to take place in Berlin in the months of September and October of the present year. The management is in the hand of the Royal Academy of the Fine Arts, and full particulars are promised shortly.

(Journal of the Society of Arts.)

The Workshop.

A Monthly Journal, devoted to Progress of the Useful Arts

EDITED BY

PROF. W. BAUMER, I. SCHNORR AND OTHERS.

VOL. I. No. 3.

PATTERNS FOR WEAVING IN THE STYLE OF THE MIDDLE AGES.

The love for rich colors, predominant during the Middle Ages, must be attributed partly to Antique, partly to Eastern influence, and made its way the more readily among the nations who at that time were the chief promoters and representatives of Art and Culture in Europe, inasmuch as they were, from times immemorial imbued with an innate taste for gay colors.

Nothing could be more favorable for an appropriate development of this characteristic tendency than the stuffs which were in use, as well for garments, as for hangings and draperies for the adornment of the dwelling and the church. Especially the figured silk tissues imported from the East from an early time as articles of luxury, gave free scope to the introduction and display of rich and various colors; and while the home-made woollen and linen fabrics were mostly one-colored, to be applied, as the case required, and according to destination, to a pattern of different colors, these Eastern fabrics were from the beginning chiefly variegated, or relieved and enriched by embroidery.

The silk tissues came from the East, and as a matter of course the patterns also with them. They exercised great influence on mediæval ornament in general, and Eastern designs retained, during the whole of the Middle Ages, their hold on silk manufacture, even when the latter had already advanced to the West; for we meet Eastern reminiscences in the silk tissues of the West even in the latter periods of the Middle Ages, and certainly there was less reason for this branch of industrial Art-workmanship to free itself from its influence than for any other, this style of ornamentation being so well adapted to the material and to the purpose it had to subserve.

The ornamental types were borrowed from the animal and vegetable kingdom. Both however were subjected to the same strict rendering and conventionalism, highly expressive of an ideal conception and form, so much so that frequently neither a distinct vegetable nor animal type can be discerned as having suggested the ornament. When however this is the case, only certain characteristic features illustrate that it is, e. g., now a lion, now an eagle, or stag which it is intended to represent, a principle also followed in the representation of vegetable types, where the application of foliage and flowers to some ornament is subordinated to distinct laws, although perhaps one single leaf may be pointed out as suggestive of some distinct plant. In this also is shown a keen perception and understanding of the true principles of Art, an andeavour to find the right expression of form, at once appropriate for the material and subservient to the purpose of the work. The task being in the present case to enrich and relieve a surface, mostly intended to appear in the plaits and folding of draperie, the natural rendering of vegetable and animal forms must decidedly be condemned, and be supplied by the flat treatment of conventionalised ornament, the only admissible style of decoration, although the originial types may be borrowed from nature.

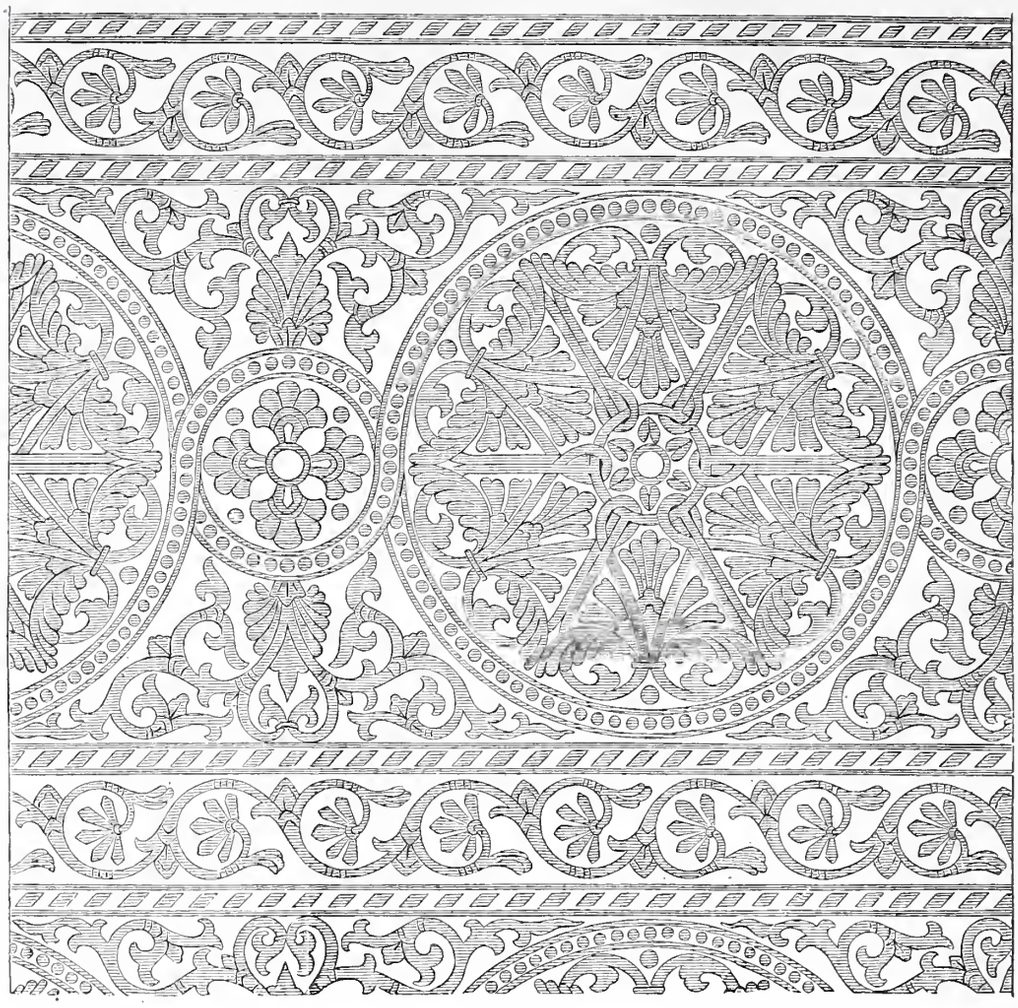
Hence it must be inferred that no branch of Mediæval Art deserves more to be set up for suggestion and emulation than that of weaving. Principally the sacred vestments of the Roman Catholic clergy, the tapestries and hangings which adorned the walls and furniture of the church, owing to the necessity for a rich display of colors, furnished most suitable and beautiful examples. Still the production of textile fabrics for domestic use ought also to be guided by the same principles; for it is certainly ridiculous to see bouquets of natural flowers on a folded curtain, following the broken lines of the drapery, or to step on a carpet on which a naturally designed lion is extended. However we will not dwell any longer on this point in order not to repeat what others have said before, or display a mock bravery against an imaginary enemy long ago vanquished. Let us rejoice that in general this erroneous tendency has been again carried away by the same waves of fashion which had borne it to land, and that the conviction of the necessity for conventional patterns has taken deep root in the public mind. Already for some time a style of ornamentation, elaborated by earnest studies of old specimens of weaving and embroidery under the influence of Eastern models, has been adopted for textile fabrics,

based chiefly on geometrical, or strictly conventional, vegetable forms, but in many cases they exhibit a certain stiffness; and it is but seldom that they reach the beauty of ancient Eastern, or of the good old Western patterns of Mediæval Art-workmanship. It is very wrong also to recoil from the adaption of animal types to ornamental purposes, nor is the reason of this aversion probably to be sought in the conviction that a natural treatment is unsuitable: but rather in the fear of producing conventional monsters through a certain want of artistic skill and discernment; for they certainly must be conventionalised in such a manner that they do not appear as animals, but as ornaments, a principle observed with all the better examples of former periods in Art.

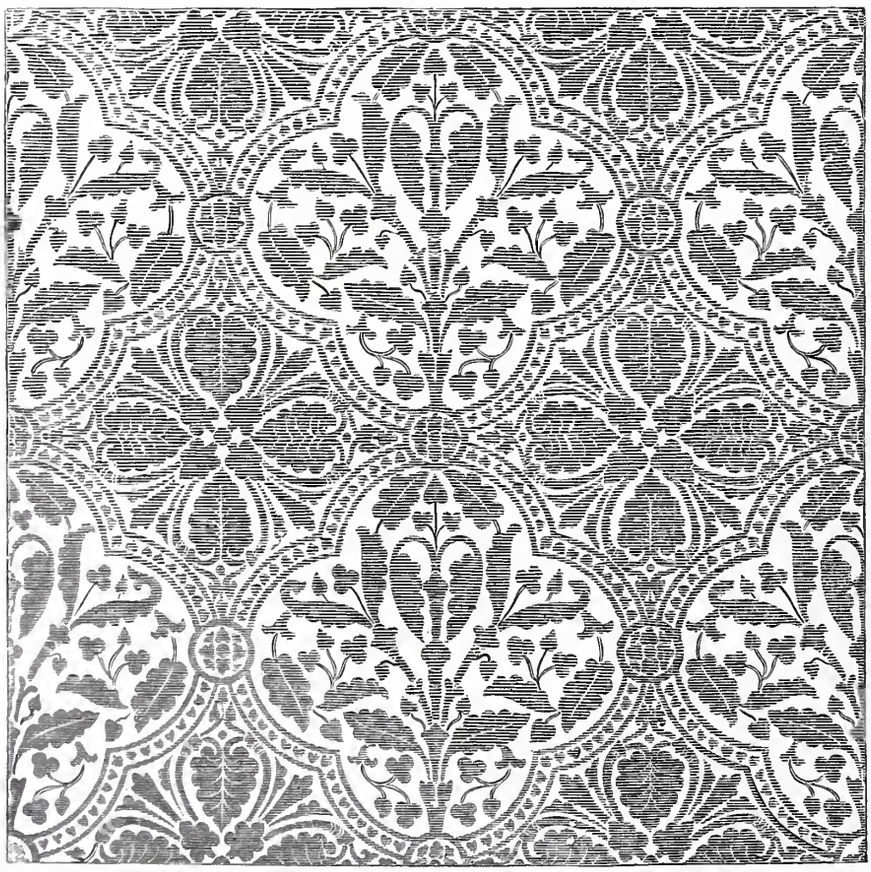
Convinced that it may be of interest and service to many a lover of Mediæval Art-workmanship, we publish the accompanying patterns for woven fabrics, either directly suggested by Mediæval specimens, or designed in the same style. In a general way there may be distinguished chiefly four principles according to which Mediæval ornament is formed. There is

1. A sort of intricate network, or diaper spread over the whole surface.

2. An arrangement in zones, or bands of ornament.



No. 1.



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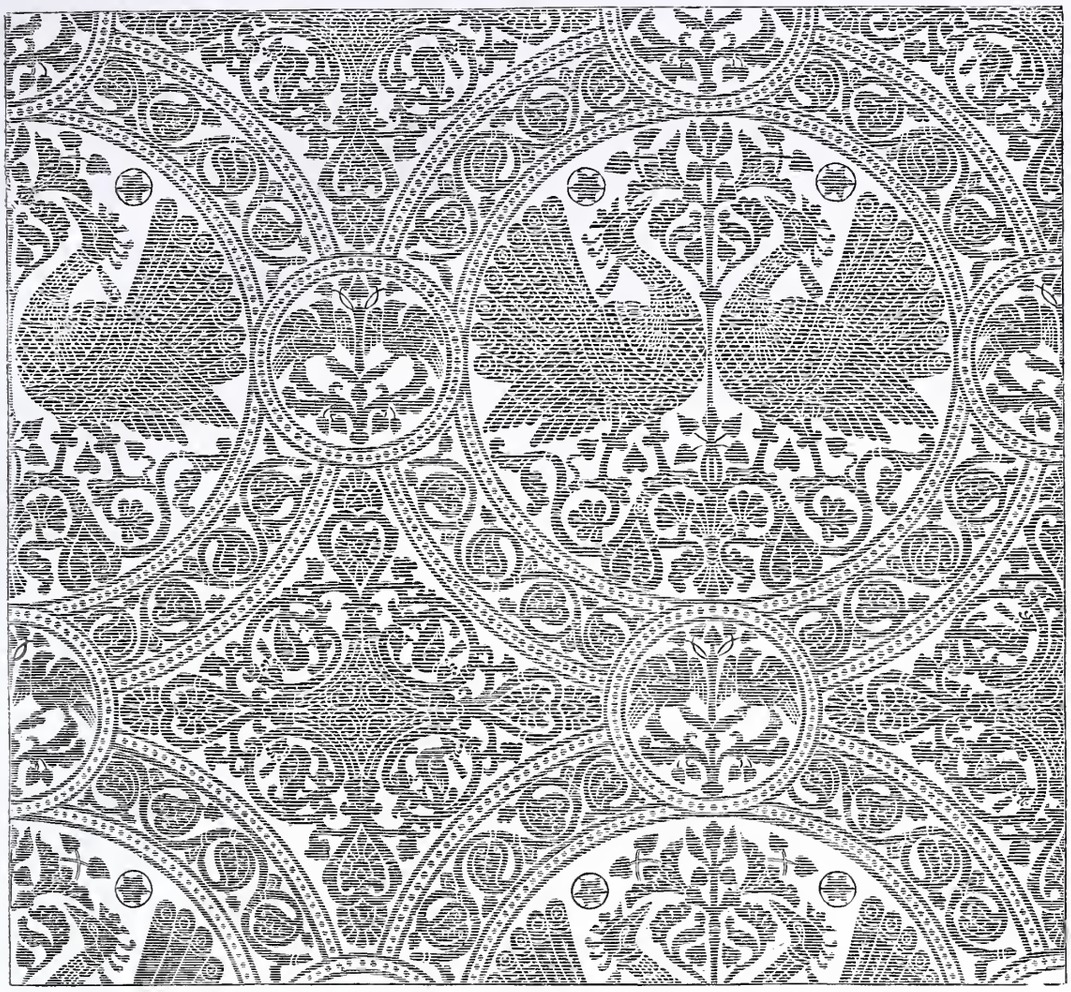

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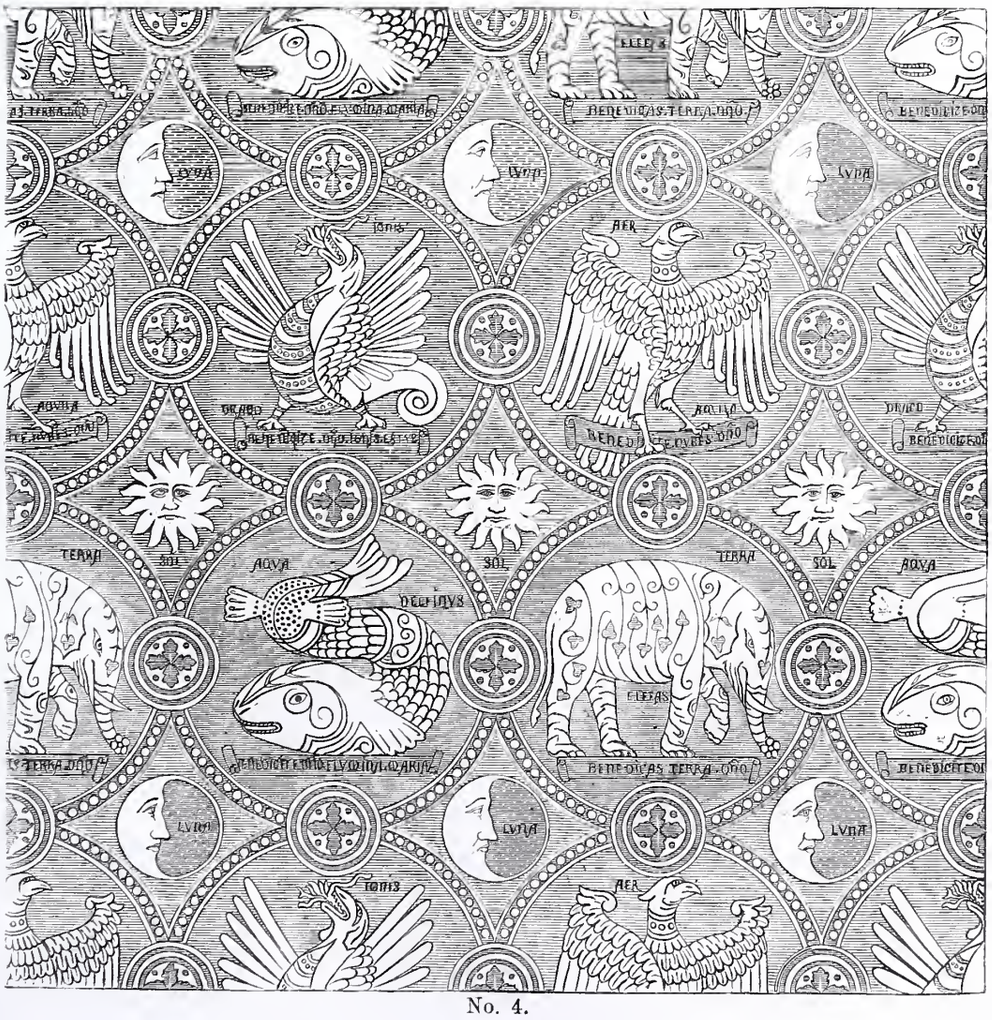


No. 4.

3. The main features of the design are represented by geometrical groundwork, drawn over the stuff, and composed of geometrical lines, touching each other, and each forming a separate pattern.

4. The stoff is powdered with distinct ornamental figures, repeated in regular intervals sometimes framed by geometrical lines.

We give here some examples of the 3d category, to be followed by illustrations of the other classes as the occasion may furnish.

In No. 1 we see bands of ornament united with regular geometrical compartments. The fabric was executed in yellow on white ground, and should not be manufactured in two colors, forming too strong a contrast, else the pattern would appear too minute, the scale of the accompanying design being one half of real size. The stuff was used for chasubles. In the same way Nos. 2 and 3 were worked and made use of, the latter also being yellow on white ground. This pattern was of remarkable beauty when executed in gold on dark-blue ground, a sample of which was made for hangings, although it was not produced on a large scale on account of its costliness.

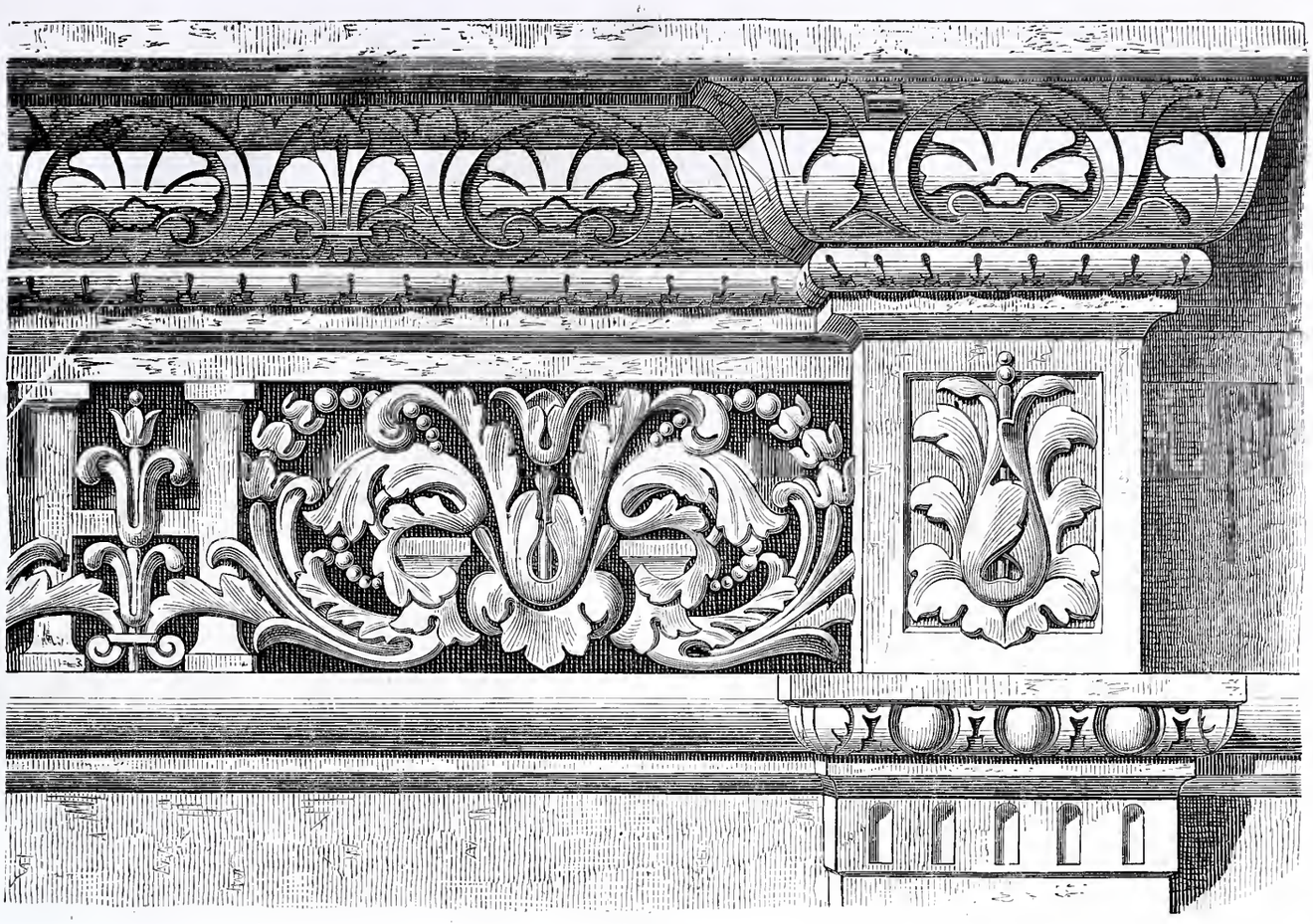
Pattern, No. 4 was designed and executed as tapestry for covering the walls under the windows of the presbytery of a Romanesque Church. The subjects of

the design correspond to the rich symbolic ornamentation displayed all over the church, and are intended to represent the four elements bearing testimony to the praise of the Lord, to which the inscriptions refer. The scale of the whole, according to its destination, is very large. the design executed in yellow ochre, relieved by a ground forming alternate zones of red-brown and dark-green. It has been tried to reproduce the pattern on a smaller scale also, and in differnt colors, that executed in gold on white ground being of great effect. Still we should not recommend it for any other purpose than for tapestry, the treatment of the pattern being too free for vestments.

Specimens of Ornamentation.

No. 5.

Renaissance Panel from the Door of the Church of St. Eustache, Paris (16th century).



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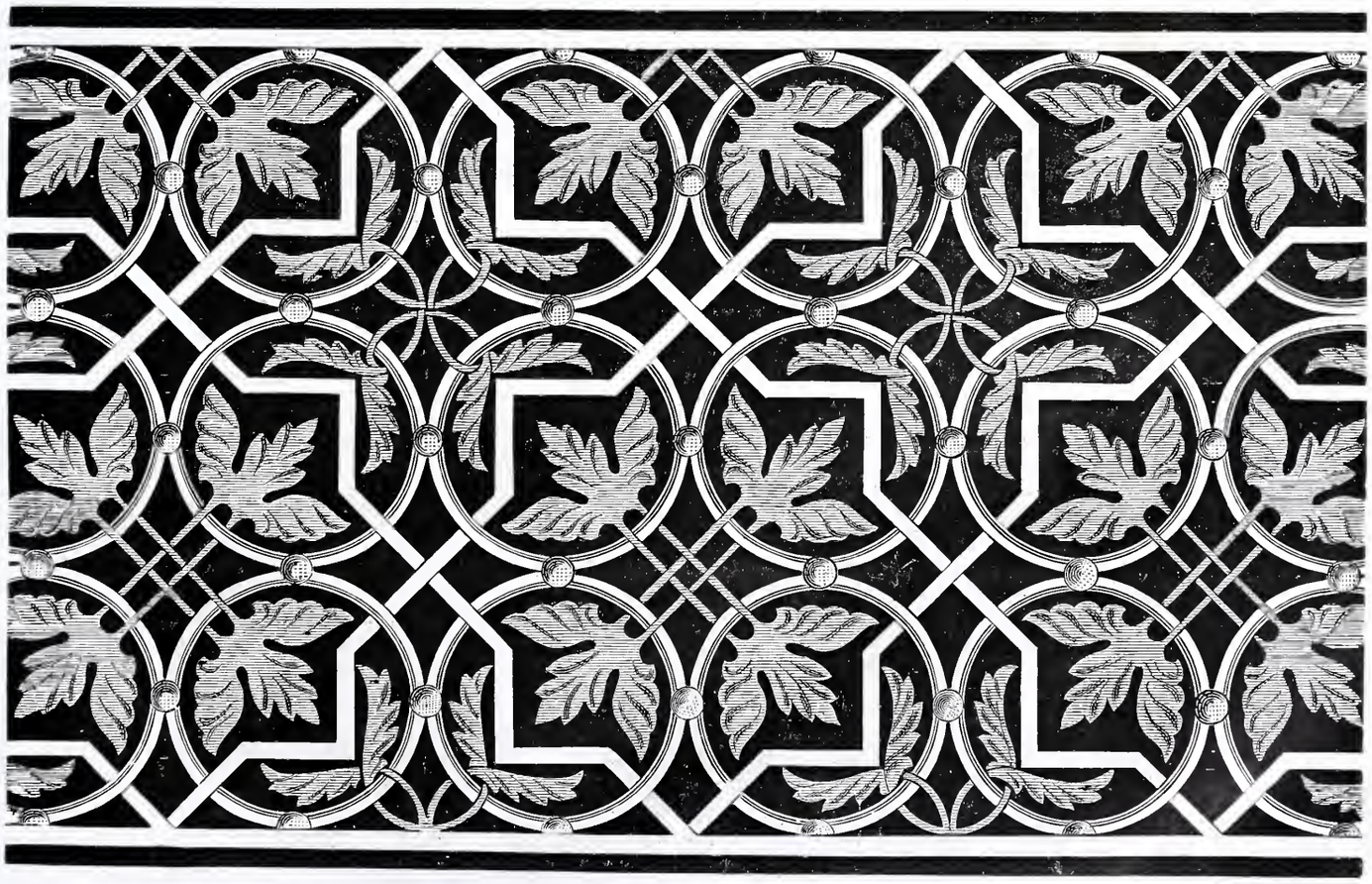
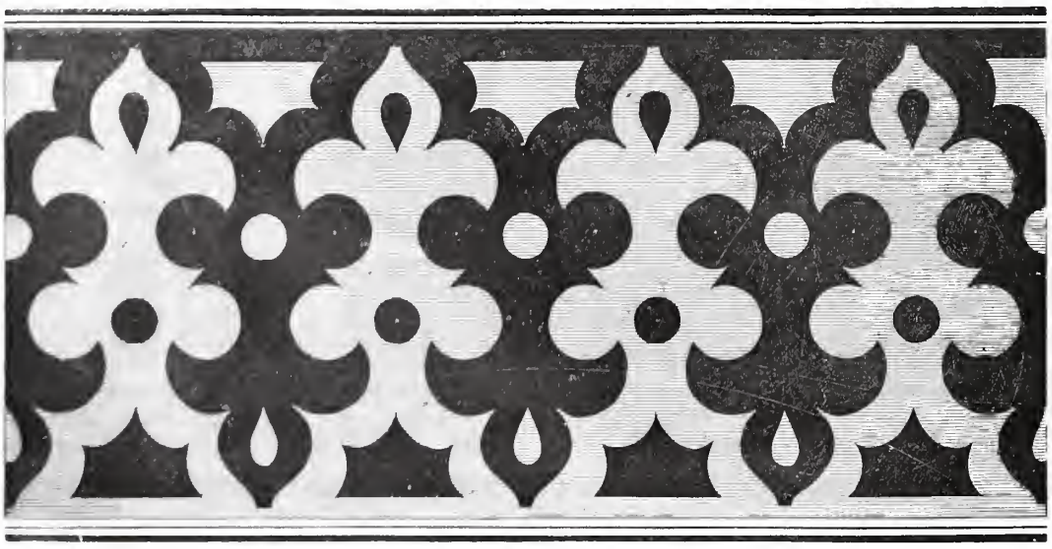


No. 7.

No. 6. Cap over Windows of the Louvre, Paris; style of Henry II. (middle of 16th century).

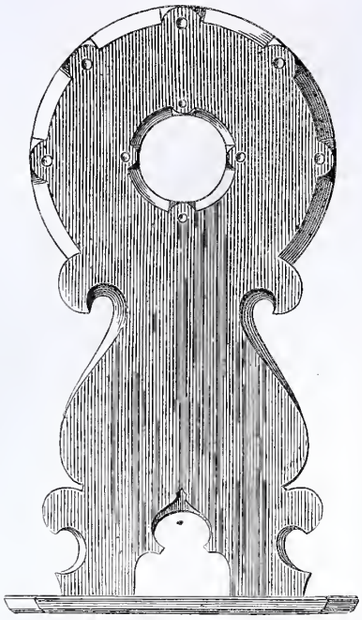
No. 7. Example of Mural Painting in the Church of San Francesco, Assisi (13th century).
The ground is black, with green leaves, the geometrical design of intersecting lines being white, and the tangential circles brown with yellow clasps or nails on the points of contact.

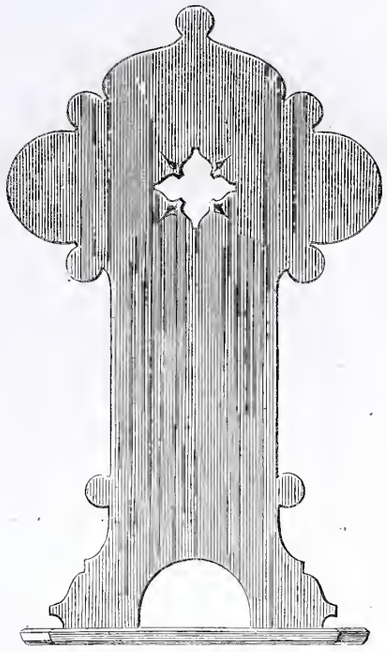
No. 8.

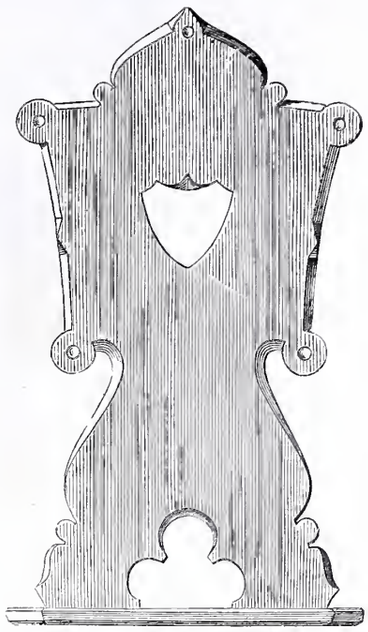


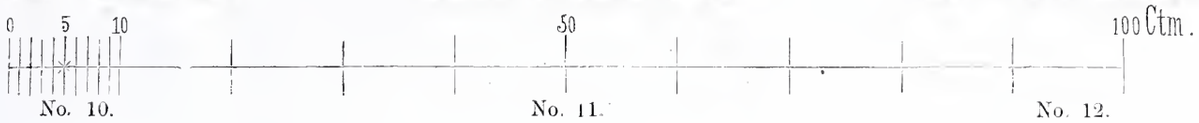
No. 9.

No. 8. Specimen of Decoration of Modern Architecture, from the great Vestibule of the New Opera House Paris, M. Garnier, architect.
No. 9. Pattern of Arabian Frieze from the Mosque Omu, Cairo; time of creation 1362—1376. The colors used are black and red.

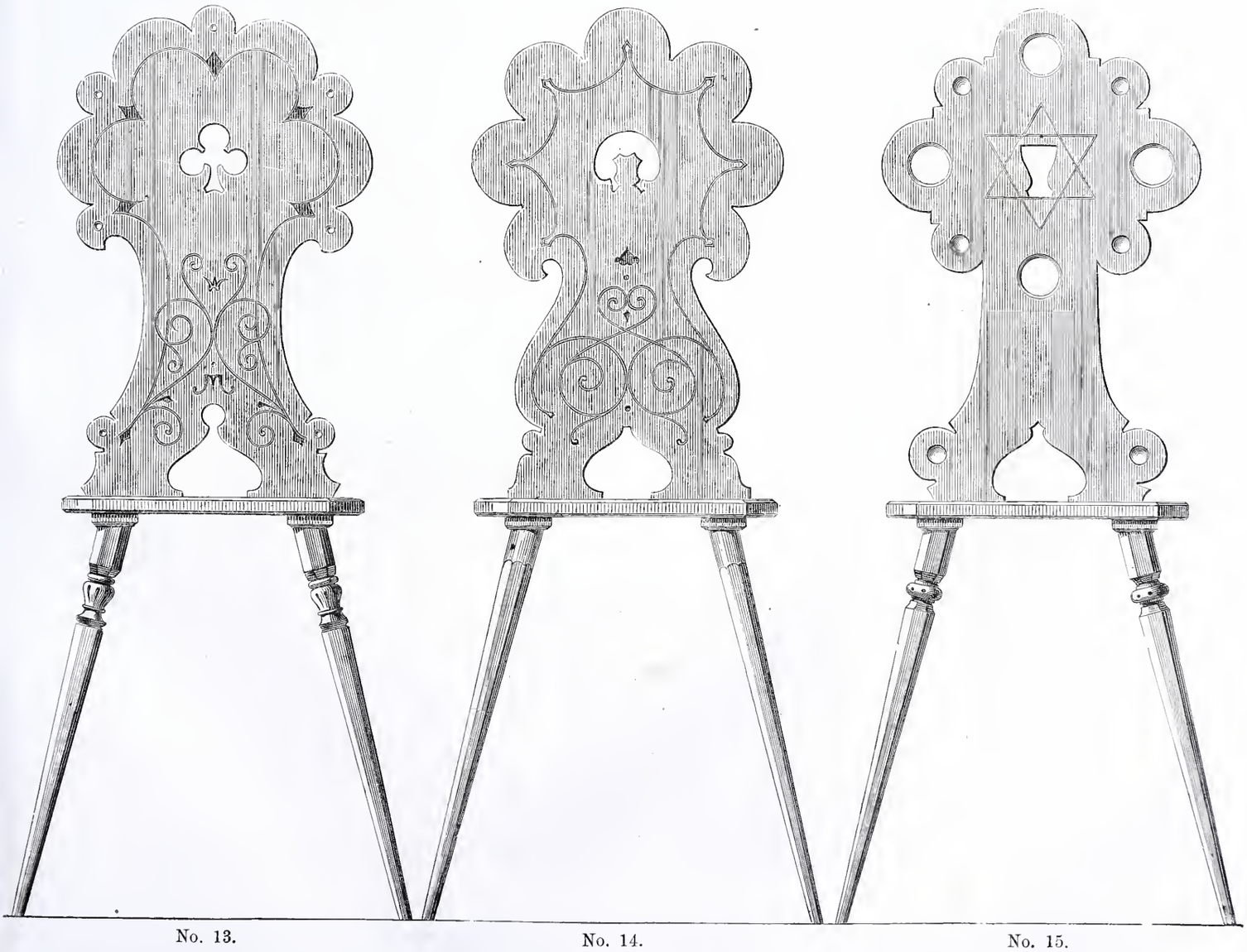






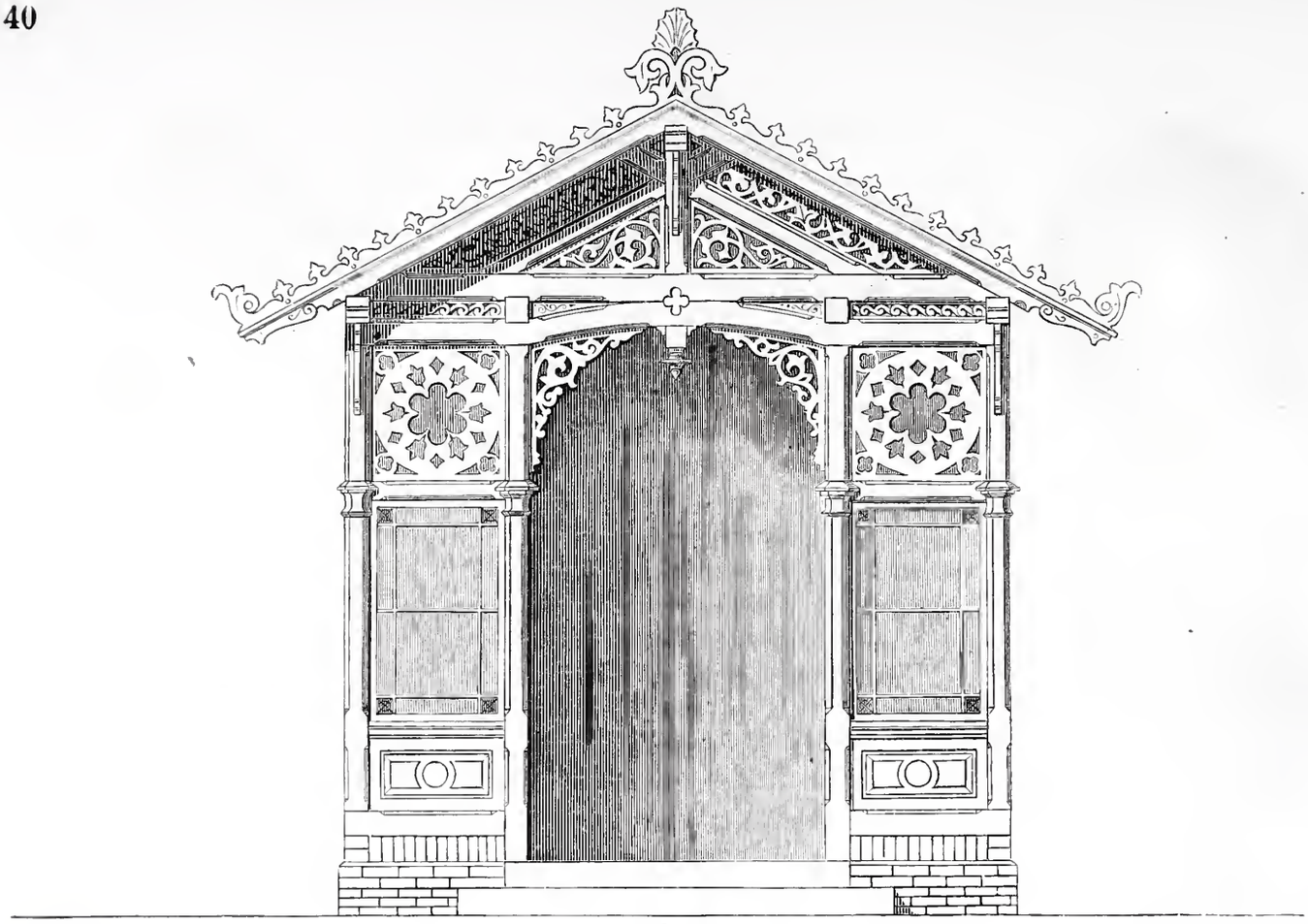


No. 10. No. 11. No. 12.



No. 13. No. 14. No. 15.

Nos. 10—15. Specimens of simple Chairs, in stained pear-tree; the seats chamfered all round slope slightly towards the back; the ornament after being incised is painted black. For full-size design of back see No. 1 of supplement.



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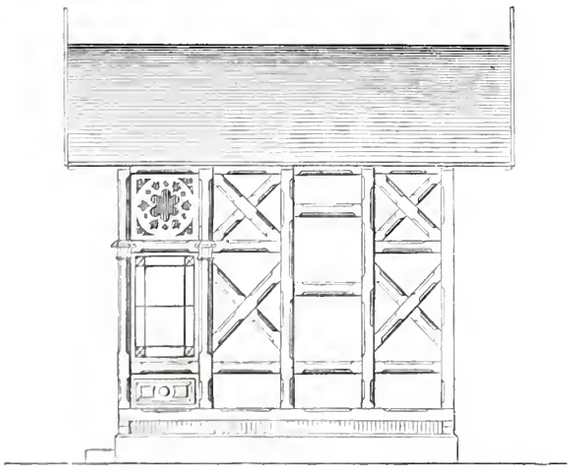

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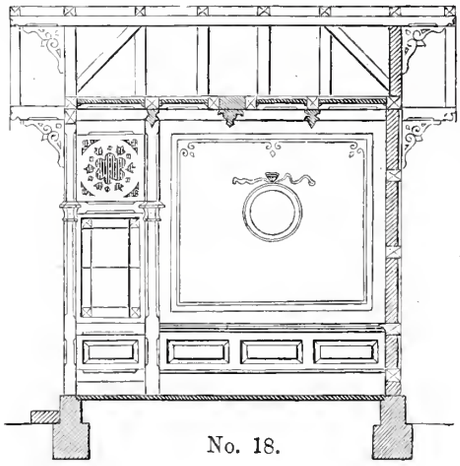

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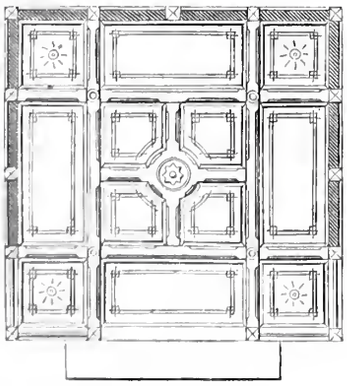
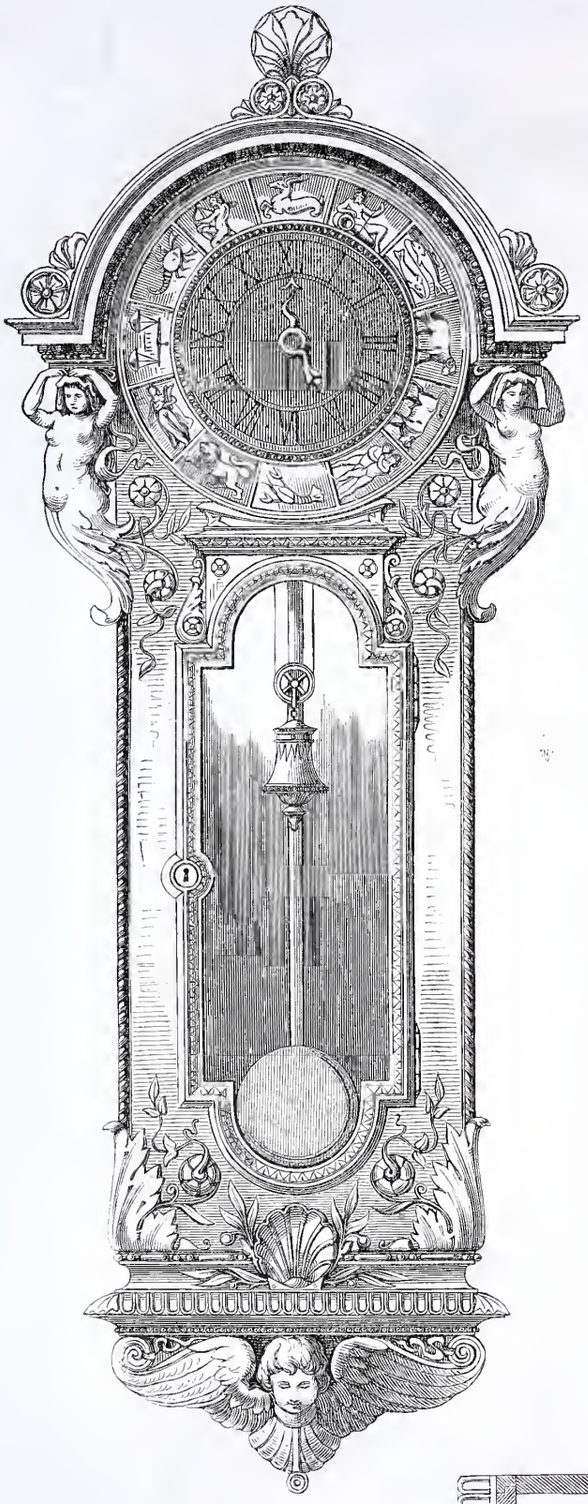
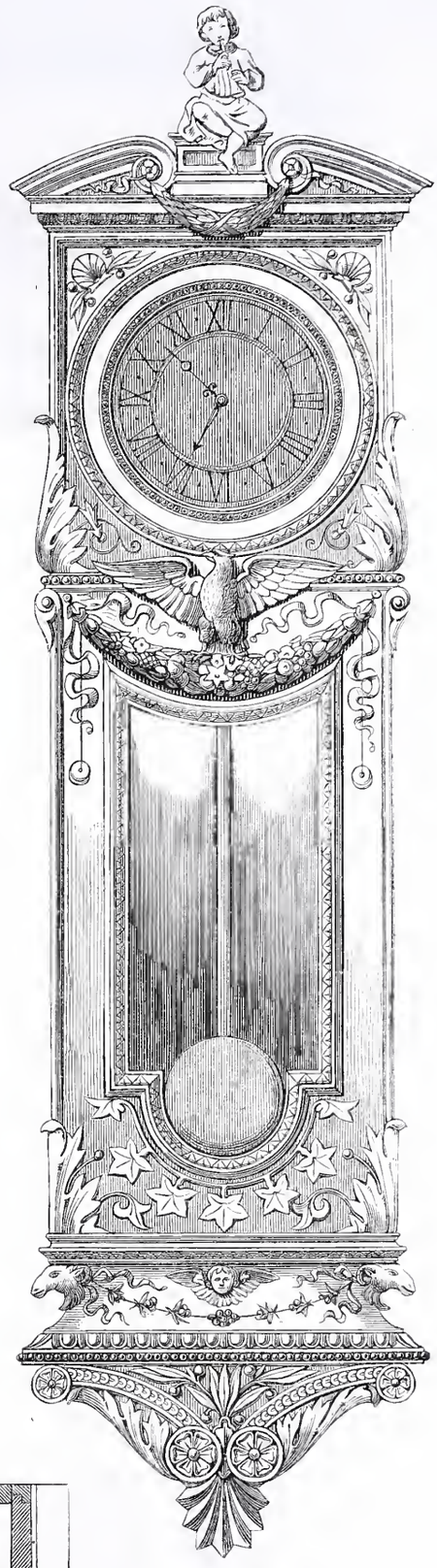
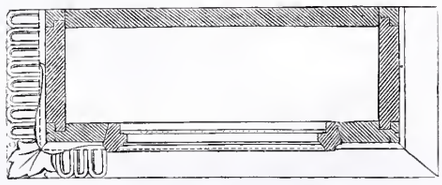


No. 19.

Nos. 16—19. Design for a Summer-house, closed at the back and the two sides. The four rectangular openings, left and right fo the entrance are glazed, the cornerpieces being different in color, the roses above the windows likewise closed with green, red, blue and yellow glass. The compartments of the ceiling and the panels of the inside walls are painted plain with a few borders, and simple ornaments in color, while the apparent woodwork receives the natural wood color. The roof is slated.





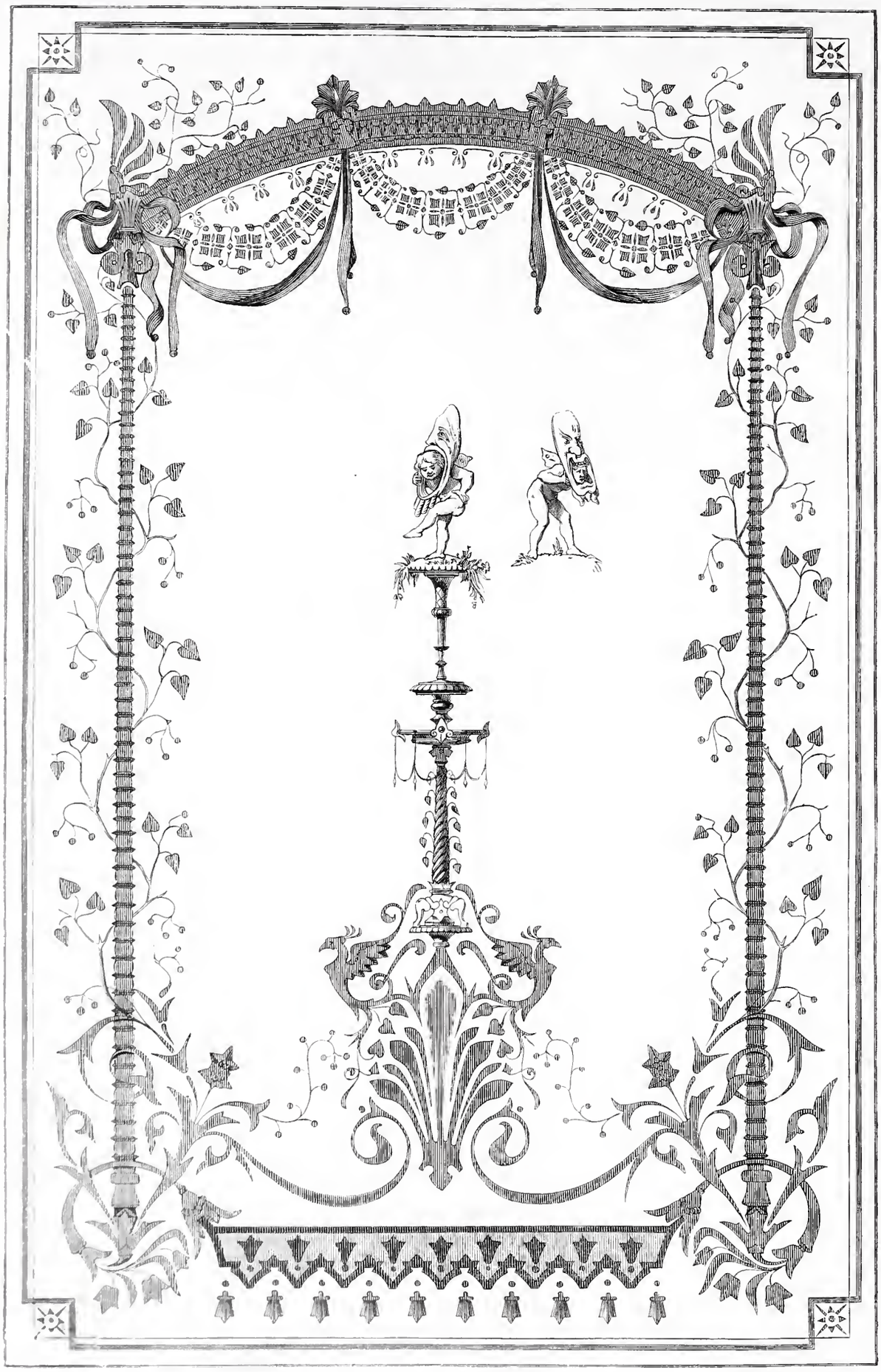


No. 20. No. 21.

Nos. 20 and 21. Designs for Regulator cases, in pear tree.

The framework of No. 20 is stained dark brown, the fillets of the mouldings round the small glass door, that of the cyma of semicircular cornice, those encircling the flowers of the acroterial termination, and the hands and pendulum are gilt, the weight oxydized bronze, the dial itself being azure, the surrounding zodiacal emblems likewise marked by fine facings in gold.

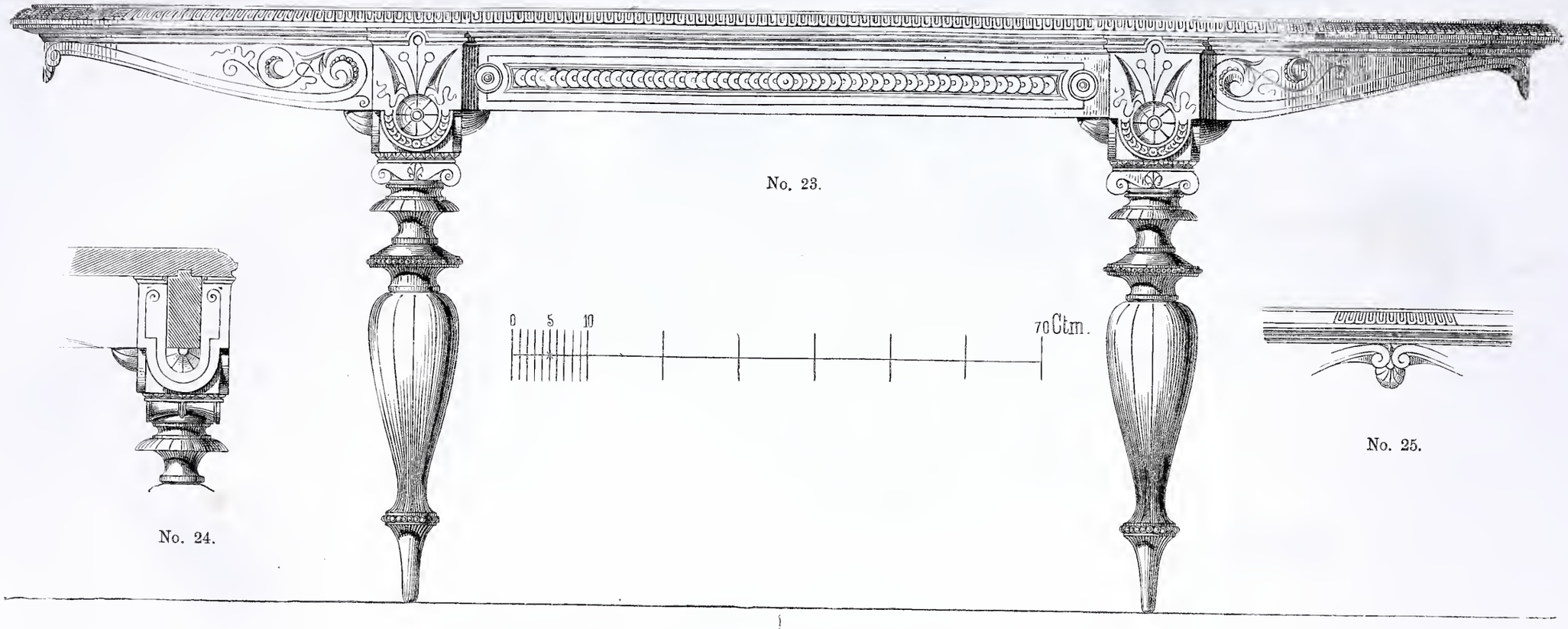
The framework of No. 21 in imitation of ebony is polished in its plain surface, the bead-rolls and egg and dart mouldings and all other ornaments being left rough, the figures, hands and pendulum are again gilt, the dial itself opaque white, the back is lined with dark green cloth, the figures between the volutes of the curved pediment being oxydized bronze. For full-size details, see No. 2 of supplement.



No. 22.

No. 22. Wall decoration for a conservatory.

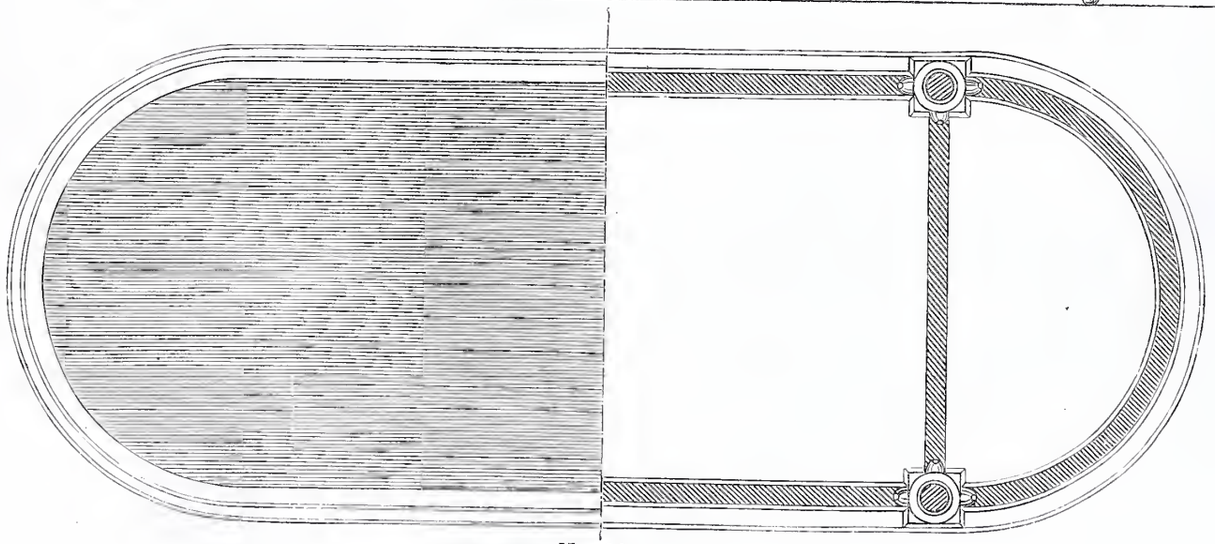
The two imps, intended for a pair, are playing with Grecian masks, the one laughing while putting his head into the tragic mask, the other crying, not being able to extricate his head from the comic mask.



No. 23.

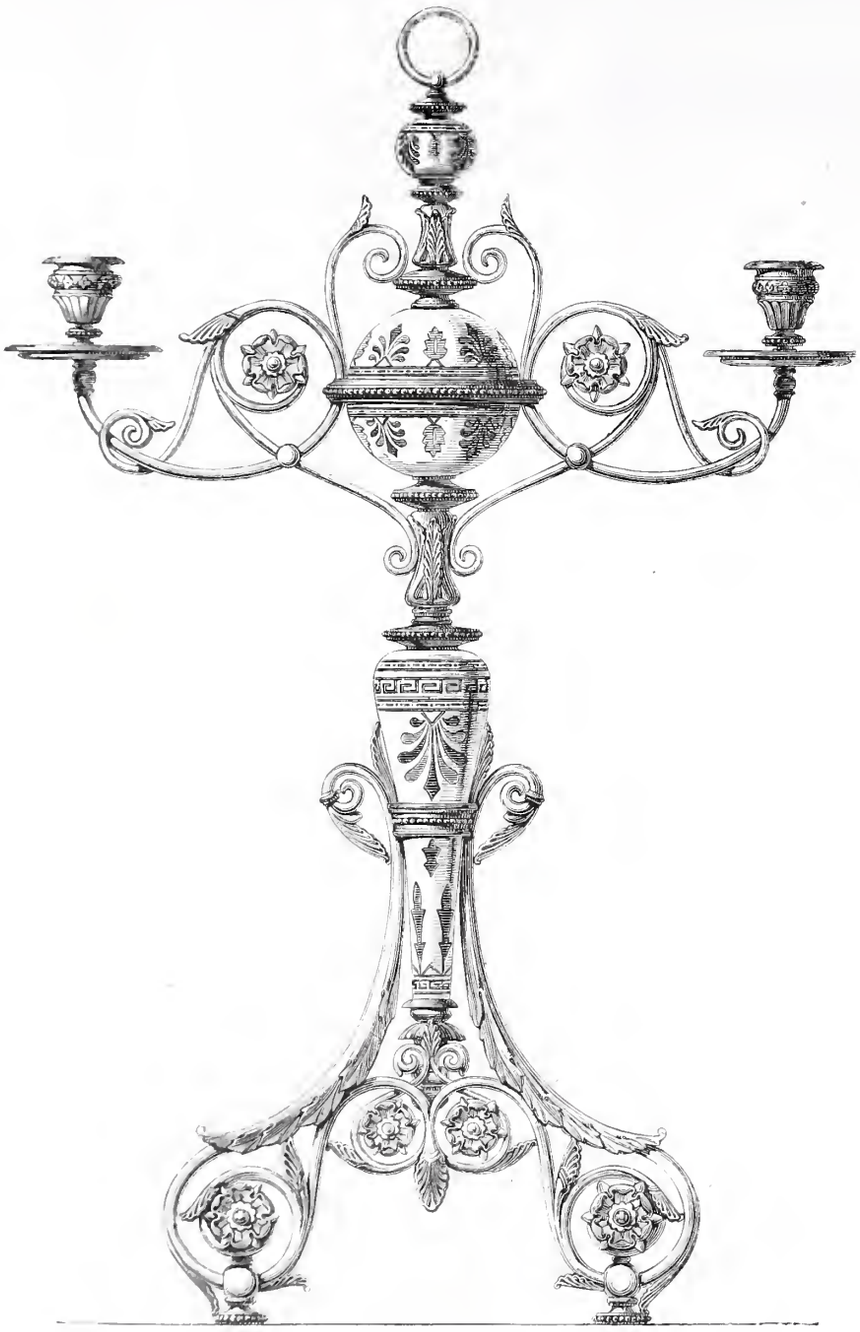
No. 24.

No. 25.



No. 26.

Nos. 23—26. Dining Table in polished ebony accomodating about eight persons. The slab covered with gold tinged American eloth. The ornaments deeply incised on the under parts of the semi-circular ends and along the two sides may be suppressed, if a more simple treatment is preferred. In this case the ornamental mouldings are also left plain; (see Nos. 6 and 7 of supplement).



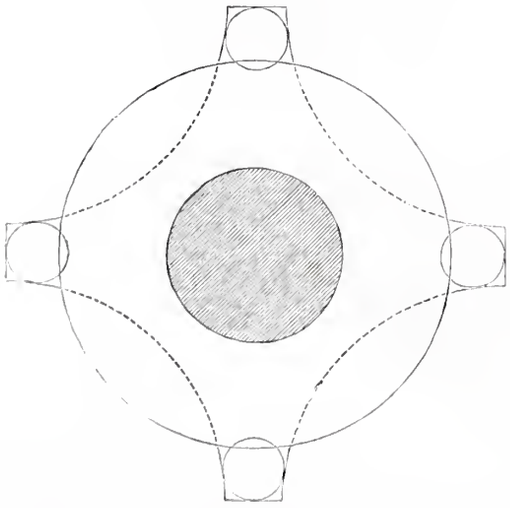
No. 27.

No. 28.

From the Pari s Exhibition.

No. 27. Candelabrum with six branches in gilt bronze, with bowl and shaft of crystal.

For the sake of clearness only two branches instead of six, and two feet instead of three are given in our drawing.



No. 29.

Nos. 28 and 29. Epergne in bronze with crystal dish.

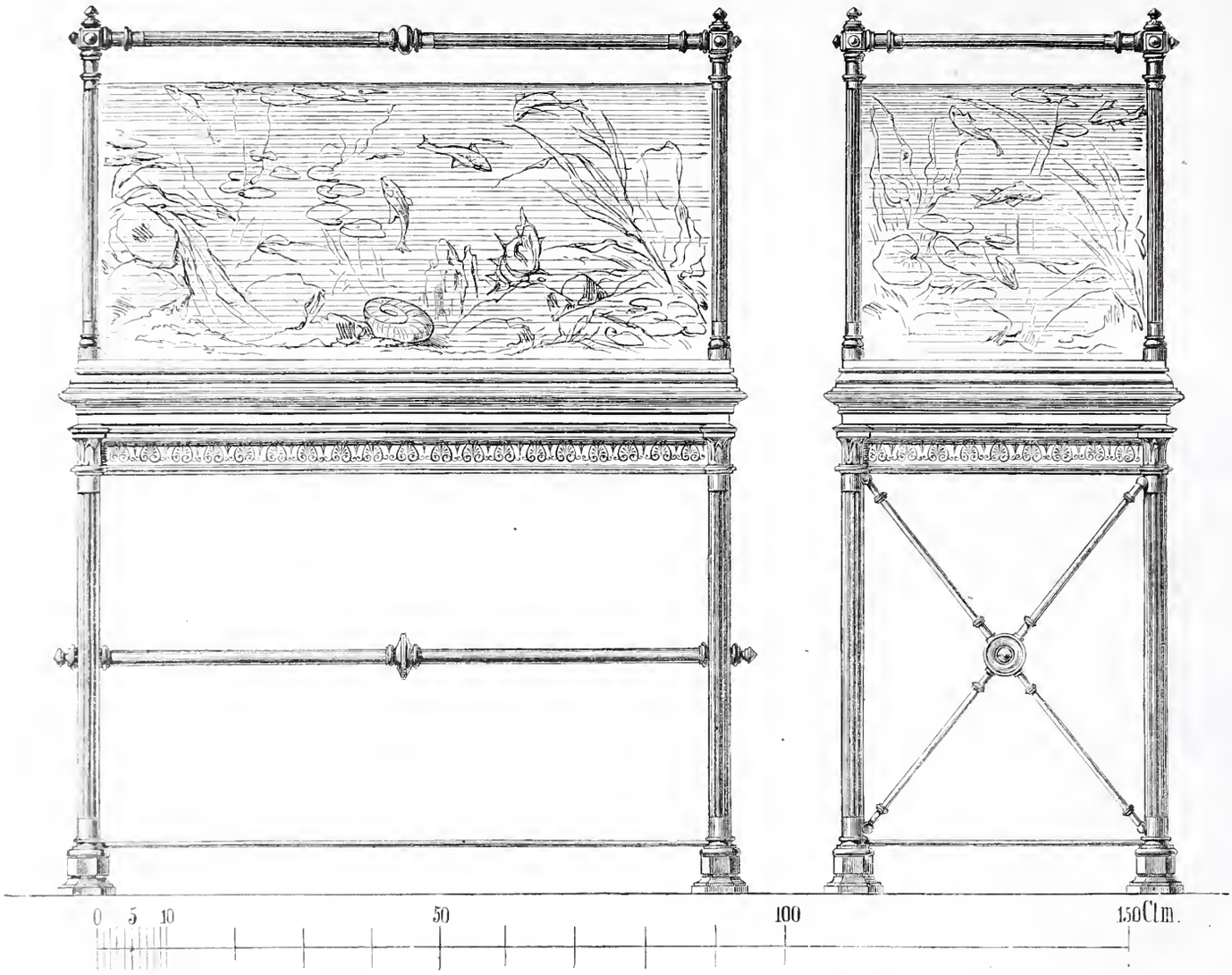
No. 30.

No. 31.

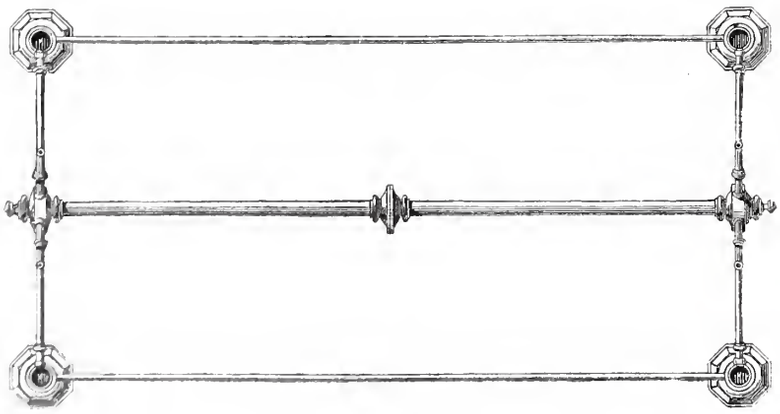
Nos. 30 and 31. Majolica Vases for flowers.

The ground of vase No. 30 is of greenish grey tint and glazed, the leaves and violets keeping their natural color, the latter applied to and relieved by a dark blue ground; the handles are of yellow color, changing into green towards the lower parts.

The ground of vase No. 31 is dark blue and glazed. The heads grey, the handles yellow, changing towards their upper parts into reddish, towards the lower into a green tint.



No. 32. No. 33.

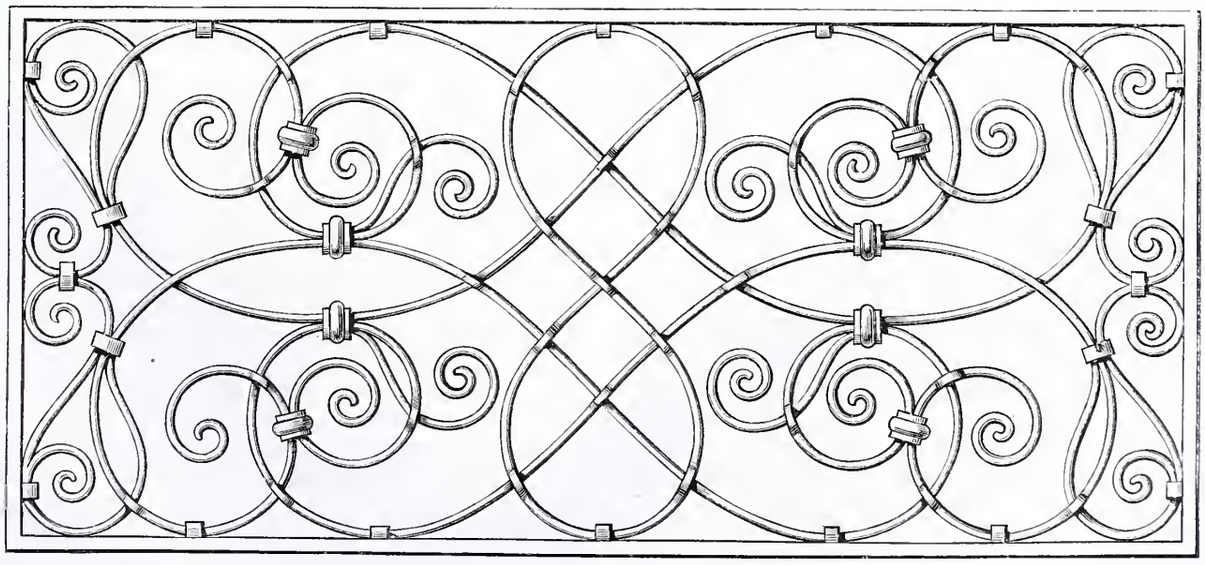


No. 34.

Nos. 32—34 Simple design for an Aquarium with supports and framework in polished brass.

For details see No. 3 of supplement.

No. 35. No. 36.



No. 37.

Nos. 35 and 36. Wrought Iron Railing and Gate, with giltknobs, leaves, and spears.
(Nos. 4 and 5 of Supplement.)

No. 37. Wrought Iron Panel of the 17th century.

VARIOUS.

The New Opera House in Paris.

The new great opera house of Paris, or to use its official designation, Academy of Music, from which some specimens of decorative ornament have been given in this and two previous numbers of *the Workshop* will, when fully completed, be one of the most gorgeous and perhaps most appropriate buildings of its kind. The ornamental portions are not yet entirely finished, but the work presents an interesting example of the kind of decorative architecture now in vogue. The main façade of the building looking upon the Boulevards is approached by a flight of steps extending along its entire length and presents seven bays, two of which, forming sligtly advanced wings, flank the centre on either side. These bays are marked in the ground floor by semi-circular arcades, decorated with statues and festoons, the principal floor being relieved by a loggia or colonade of grouped columns supporting a complete entablature of architrave, frieze and cornice, the two projecting wings surmounted by curved pediments. This colonade is partly masked by a sort of marble screen of great richness, pierced by circular openings, the obscure ground of which is relieved by gilt busts, each compartment being supported by two monolithic columns with shafts of colored marble and gilt bronze capitals. Balconies project between every two of these columns, and contrast with the cream-colored stone by elegantly shaped balusters in green Swedish marble. Above this loggia, but further behind rises an attic story, richly ornamented with groups of figures, the spaces between filled with panels in bold relief, principally formed of boys holding festoons and crowned shields of colored marble, bearing the gilded letter N. This façade has an inscription in the centre of the frieze of the colonnade which describes it as the "*Académie Impériale de Musique*": the roof is of pavilion-like construction, while the raised part, covered by a huge pediment standing up above all the roofs of the building, marks the space occupied by the theatre. At the point of junction where the "*Académie*" abuts upon the theatre, there is on both sides a pavilion two stories high, with spacious and handsome circular carriage drives, one for the public one for the Emperor and Empress. The main lines of the building and the architecture both of front and side porticoes, are capped with bronze ornaments, (see Workshop Nos. 1 and 2) that which crowns the parapet of the main façade being gilt. The outline of the parapet of the front of the edifice is straight, but the two ends are to be surmounted by bronze groups. This new monument which has given rise to much criticism and controversy is the work of M. Ch. Garnier, architect.

Removal of Paint from Carvings.

Carvings frequently thickly covered with paint cannot be scoured and washed in the ordinary way. In order to remove the paint, it must be eaten off; and for that purpose a through is required large enough to hold the carving, and to admit of its being covered over with sawdust, saturated with an alkaline solution of a strength varying according to the circumstances of the carving to be treated. By allowing it to remain in that state for a few days the whole of the paint will be eaten off.

The restoration of carvings which have not been painted, but have become blackened, must be effected by scouring only, but this by the careful hand of an experienced man. The scouring with strong or weak alkali or ammonia would raise the grain of the wood, nor could it be sand-papered over to get the raised grain of the wood off: but a number of little tools would be required with the ends dipped into a little glue to which powdered glass would affix itself and form a kind of sand-paper at the end of the stick. In this way the burrs formed upon the wood by moisture may be removed from the delicate parts of the carving: but this likewise requires an experienced hand. (The Builder)

The Use of Majolica for Interior Decoration.

Visitors to the Paris Exhibition may have remarked, at the end of one of the passages in the British section, a large yellow majolica column, with white relief ornament upon the surface. The ceiling of the new refreshment rooms, recently opened at the South Kensington Museum, London, is supported by four of these columns, which are worthy of careful inspection. They have been manufactured by Messrs. Minton, from designs by Messrs. Gamble and Townroe, founded on suggestions of the late Mr. Godfrey Sykes. The introduction of porcelain for the enrichment of the ornamental portions of columns is not an entire novelty; but a complete porcelain column is believed to be without precedent. It is intended that the walls of the refreshment room shall be covered with majolica tiles, with a low relief ornament on them. A small staircase at the west end of the refreshment corridor has lately been opened, the designs are by Mr. F. Moody, and the works are still in progress. The portions of the decoration already completed and fixed, promise to render this staircase an attractive feature of the museum. The staircase is what is called a barrel-vaulted one; its sides are panelled and decorated with enamelled earthenware by Messrs. Minton, in imitation of the Della Robbia ware. The dado, or skirting, is exceedingly rich in design. At intervals of three steps, caryatids support a cornice, from which it is evident that a handrail will project; the spaces between the caryatids are filled with panels in bold relief on a celadon ground. Between the dado and the cornice above are panels also in glazed pottery with bas-reliefs of figures holding shields; the design of these bas-reliefs is peculiar, and of a varied character. At the top and bottom of each flight are pilasters, which support the arches against which the barrel vault butts. The spaces in the domes over the landings are at present incomplete. The propriety of using glazed pottery for the sides of a public staircase is apparent. The facility of cleaning the surface of the decoration, and the durability of the pottery, are both facts recommending the judgement displayed by the management of the museum in its selection of good, decorative and lasting material. Messrs. Minton have, perhaps, hardly reproduced the effect of the old Della Robbia ware inasmuch as their glazing rather softens the lines of the details instead of leaving them sharp as the artist intended. The old Della Robbia glazing was so exceedingly thin that it did not obliterate the sharpness and crispness of the modelling. Again, the glitter of Messrs. Minton's enamel is distracting, and it does not seem so opaque as the ancient enamel. (Journal of the Society of Arts.)

Mixture of Gas and Air for Illuminating Purposes.

The Parisian Gas Company propose to illuminate Paris by means of igniting the gas formed by the union of oxygen and hydrogen. Another inventor now comes forward with a scheme for burning a mixture of coal gas and atmospheric air so as to produce an intense light. Every one knows that the ordinary flame of a Bunsen's burner is but faintly luminous. The particles of carbon are so rapidly consumed that their momentary incadescence, which according to the generally received opinion, gives luminosity to the flame, is not permitted. It is necessary, therefore, to introduce some other substance which shall be maintained at a white heat, and so furnish the light. M. Bourbouse employs for the purpose a roll of very fine platinum wire gauze, upon which he directs a large number of very small jets of the mixed gases. The combustion of these gives a vivid incadescence to the platinum, and furnishes light at a considerably reduced cost. The air, however, has to be supplied by a sort of blow-pipe apparatus, which complicates the matter; but notwithstanding this, the inventor assures us that a great saving is made by the use of his invention.

(The Mechanics' Magazine.)

The Workshop.

A Monthly Journal, devoted to Progress of the Useful Arts

EDITED BY

PROF. W. BAUMER, I. SCHNORR AND OTHERS.

VOL. I. No. 4.

Bookbinding and Fancy Leathergoods.

»Gilding's soon past
Hogskin will last.«

Would that every bookbinder and leatherwork manufacturer would earnestly take to heart this good old adage of the ancient craft. For leather is a very good, useful and lasting material, combining solidity with softness and suppleness, and recommending itself for artistic purposes, not only by its fine natural color, but also by the facility with which it receives any other color, and especially by its plastic qualities which adapt it so admirably for every kind of embossed ornamentation.

For these reasons it has been in great favor with the industrial arts of all times, and at the present day it is seen to encroach triumphantly upon the artistic departement of other materials which it tends, apparently, if not really, to supplant. These are however strange aberrations and mistakes which we must not allow to pass unnoticed; but both material and manufacture are so interesting and important, that we cannot refrain from devoting an article to the subject. We will examine into and consider what is now done, and what ought to be done in this branch, and will first of all take a retrospective view, to see whether we can find in days gone by, any sensible and truly artistic treatment of leather which may be held out for our example and instruction.

For now a days, when the bookbinder or the manufacturer of fancy leather goods, whose trade has grown out of the old craft of bookbinding, has some important task in hand, viz., the getting up of some splendid ornamental binding, some magnificent cover for a MS., we find he must solicit help from all sides, and in the end the work is much more that of anybody else than his own. First of all, as if the building of some palace were at stake, there is the architect, the factotum in all questions of art-industry, to be consulted, in order to make the design for bookcover or casket; afterwards there is the ebenist to make the wooden framework, or boards which the bookbinder then has the honor of covering with leather, if leather is to come into play at all. But then only begins the really artistic work, for modeller and formcutter, sculptor and carver in wood and ivory, bronze caster and gilder, engraver, chaser and enameller, lapidary, glasscutter and heraldpainter are called in, nay, even the historical painter may have to contribute his share of work, and thus each of the whole profession of artists, to whatever branch he may belong, has something alloted to him. In the end the work is to do credit to its master, but who really is the master? A question more easily asked than answered.

We think indeed that the whole thing might bear to be simplified, and that the art itself could only gain if a few of the other arts were not put under contribution. In fact we have precedents in the past.

If we go back to those remote times when MSS., instead of the ancient form of rolls, first took the bookshape still in use, we certainly find works of similar magnificence in richly ornamented wrappers and covers for rare and costly MSS. We possess a series of such splendid specimens in those Byzantine bookcovers, now in St. Mark's Library at Venice, which were produced within the first millenium of our era. But surely that was a different time and a different work. The MSS. were comparatively of great rarity and immense value; they were written for eternity, and they exhibited also internally a great amount of artistic skill; a material display therefore of great external richness in such single specimens was perfectly admissible. But then solid gold was preferred to the gilding of some inferior material, and in order to confer color and brilliancy, enamels were richly inlaid, and chased figures in thin sheets of silver applied on the wood. Thus the whole work, as was the case with the above mentioned Venetian specimens, was that of the goldsmith who alone understood the art of making the richest and most brillant enamel. If anybody else had anything to do, it was the ivory-carver by whom sometimes an elegant tablet, a dipthych perhaps of more ancient date, was inserted in the centre.

In these bookbindings of the oldest style is revealed the taste of the Byzantines, for outward show of richness, but the more we advance in Mediæval Art, the more simplified and judicious in design do we find bookbinding, and the leather work closely associated with it; though it is not until the invention of printing that they receive their simplest as well as their most natural form, thus only acquiring their truly artistic perfection. For then as a necessary consequence there arose a change in the manner of using and storing books, which could not but influence their form and artistic features. For the old MSS., for the most part bulky, weigthy and comparatively few in number, were usually put into a chest, or on shelves, on the flat side and not on the edge. In order to protect them in their frequent removals from injury, to which, on account of their great weight the corners were particularly exposed, the leather cover drawn over the wooden frame, was guarded with mounts in metal, especially in bronze applied to the corners as well as to the centre. Naturally enough Art took possession of these bronze mountings which had replaced a complete metal covering, and adorned them, according to the successive styles of the ornamental art of each period, with cast, engraved, pierced and chased figures and foliage. In time these corner mounts received in their centre, and were not unfrequently altogether replaced by, flattened polished knobs intended, as the most prominent points, to protect the ornamental leather cover, or possibly some medallion or relief, from suffering from friction on the table. In our modern style of bookbinding, we find imitations of such corner knobs in all sorts of metal, stone and glass, but frequently their purpose is lost sight of, and the knobs made lower than the most prominent relievo work, in consequence of which the nose of some saint or some portrait medallion is brought into collision with the table.

But when, after the invention of the Art of printing, books became more general and began to swell the libraries, there was soon too little space for this sort of binding and this way of storing them, and it was found that they would take less room if placed upright and side by side; but then the metal mountings were greatly in the way, especially the knobs which damaged the neighbouring volume. The entire supression of every metal mounting was the necessary consequence, and leather alone came into favor. This change could so much the more easily be accomplished as printed books on an average were smaller and more handy, nor did they represent the same value, and therefore did not need to be secured for eternity. No doubt there were still during the 16th and 17th centuries, some single specimens of bindings ornamented with metal, but they were splendid specimens for show, enriched with reliefs delicately chased in silver and of exquisite workmanship, such as the emblems of the four Evangelists on the corner knobs. Several specimens of such works have been preserved, but the ordinary binding dispensed with all solid metal ornament.

Meanwhile also the ornamentation of the leather had to undergo certain changes in connexion with the above-staded causes, which could not be without reaction on other leather work. Quite apart from the above metal mounts, the oldest Mediæval style of leather enrichment consisted in the painting of ornaments or figures, and leather thus painted was used to cover chests, boxes and caskets, and strengthened with metal mountings. In the course of the 14th century, perhaps earlier, coloring was replaced by a sort of relief ornamentation, which, in the beginning, is sometimes found combined with painting as e. g. in the caskets still extant for the German Imperial and Bohemian crowns of Charles IV. Relief decoration, probably in use for some time in the technic arts of the Arabian and Saracenic races, and thence handed over to the Western World, was produced either by stamping while still in a soft state, or by cutting and underlaying the leather, which allows relief decoration, but only very sligthly raised above the surface. With this relievo work was combined a tracing or incising the smooth surface of the leather, thus producing the contours, the principal features of the design.

This last kind of technic workmanship was extensively practised especially during the 15th century, and a pretty good number of specimens of that time, such as caskets, fancy boxes and cases, have been handed down to us. The relief, always very low, and frequently missing altogether, in which case the incised drawing, consisting in ornament, arms, figure-subjects religious or domestic represented the decoration, was in perfect accordance with the greater lightness and with the alteration in the manner of shelving the books; but with regard to the manner of production it would always remain artistic hand-work not appropriate to the increasing quantity of books which made another style of workmanship, desirable, as more suitable for reproduction.

For this reason at the beginning of the 16th century this was again abandoned and another system of slightly embossed ornamentation, produced by impressions from dies, was introduced in its stead. These dies could be used again and again, and for this reason many specimens of bindings in hogskin or brown leather, showing quite the same design, have been handed down to us from the 16th century enriched with ornament and armorial bearings, portrait medallions, medallions of emperors, kings, electors, reformers, renowned women, men of letters, etc. Numerous examples of this kind are met with in libraries, but most of them are stiff and clumsy. On this account perhaps, this system of ornamentation, in itself quite right and still appropriate for imitation in modern Art, was abandoned again.

At all events another element of decoration tended to supplant it, which originated in the East towards the middle of the 16th century and soon spread its influence over many different branches of the industrial arts. This element consisted in the linear arabesques of Eastern Art, which became known in the Western World through purchases of Turkish and Persian armor. Armorers and sword-smiths first imitated the new ornament, but the gold-smiths soon took possession of it, using it however more in the way of engraving and enamelling than as the Orientals and armorers in welding one metal into

the other. Numerous are the designs which the „petits maîtres“ amongst the engravers of the 16th century have, in this way, engraved for goldsmith work. Finally these arabesques, these interlaced patterns of charming arrangement, were also especially applied to leather and bookbinding, being either plain and colorless, or stamped with metal dies on the leather.

Arrived at this point the binding was in perfect accordance with the new method of shelving; relief decoration was altogether done away with, the covers, with the exception of the stamped ornament being quite plain, and all clasps and ornaments dropped. Bookbinding had now acquired its real modern form.

The means by which it was again lost or at least led into a different path was pictorial decoration. Not contented with the different natural colors of the leather from white hogskin, or whitish yellow, to every tint of brown, dyed leather, especially red and green was employed with a more solid color for certain parts, such as broader bands interlacing more delicate ornament. All this, combined with judicious and modest application of impressions in gold, was a perfectly appropriate treatment of ornamentation. Not so however when paintings of figure-subjects, especially on hogskin, were added, for these would necessarily soon be worn out by frequent use and removals in and out of the bookcase.

Leather however was still the chief material. But it received a severe shock when variegated papers imported from China and Japan and imitated by ourselves, at once cheap, light and convenient, began to replace it, at the sacrifice of solidity and good taste; for this style of variegated ornament, imitating more and more the irregular and accidental marbling of stone, could not compensate for a system of ornamentation elaborated with artistic conventionalism and repose. This, as we have seen, consisting chiefly of stamped patterns interlaced with gold lineaments, lost by degrees the characteristic charm of arabesque decoration, which with all its liberty still retained the conventional harmony of true Art, a characteristic it had derived of old from its Eastern origin, until at last it degenerated into those unconstructive, confused and capricious forms and lines which mark the decorative styles of „Louis Quatorze“ and Rococo. Thus in the second half of the 17th and during the 18th century, art and material were on the decline, and it was only in the libraries of princes and rich book-collectors, that something of the old solid and rich though simple style of leatherwork was still preserved. In these red was the favorite color.

The common trade quite lost sight of the artistic signification and use of the leather, thinking only of its durability, and employing it only for backs and corners; so that, when very splendid bindings were to be produced, leather was not even thougth of, but silk, satin, and even velvet were introduced, all alike unsuitable for constant wear, as well as indicative of a certain degree of inferior taste. In the first decades of this century, all presentation-copies of books used to be bound in velvet or silk. Their want of durability could not but be apparent, and in some few cases only leather was resorted to as the remedy; but more usually gilt bronze mountings were again applied to the velvet or silk; and while in our times, in order to combine durability with cheapness, cloth has been introduced for common binding, we have, for rich ornamental works, arrived at last at the excess of artistic display which we described above.

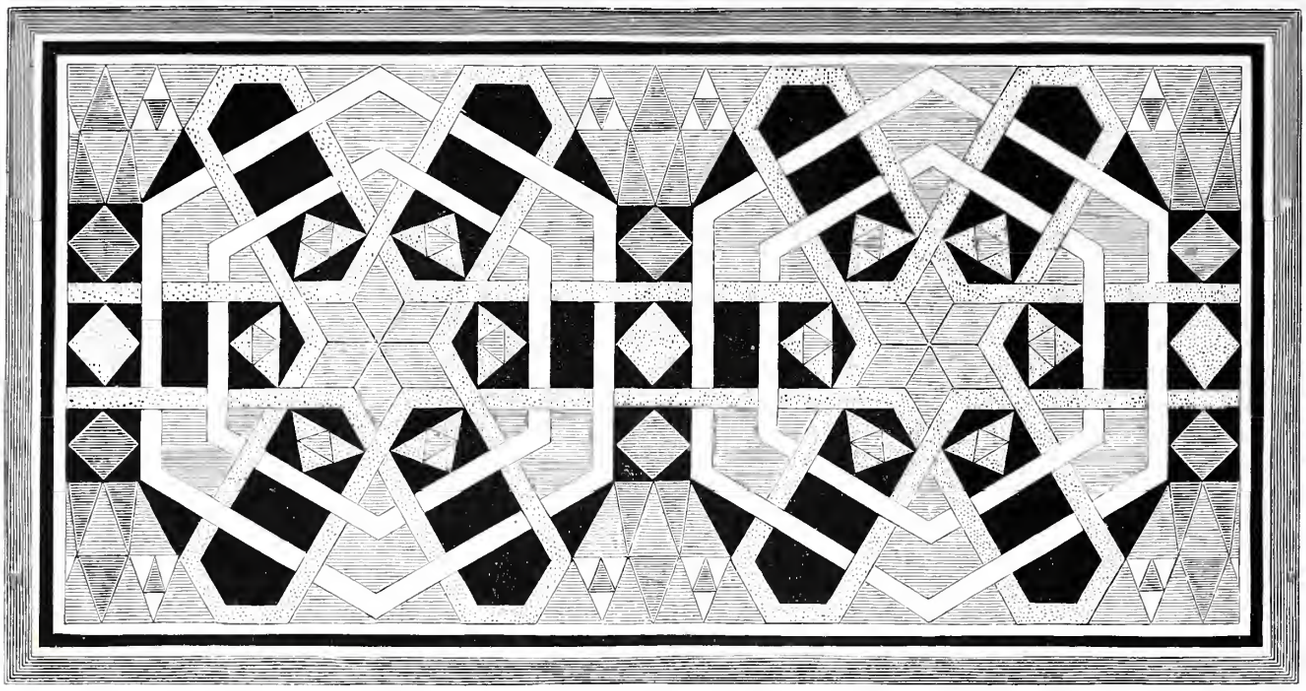
At Vienna, one of the principal depots for fancy leather goods, and where magnificent works of this kind are not wanting, this medley of all possible branches of art-industry has been really systematised. There is a tolerable number of skilful bookbinders and leather-work manufacturers, from whose workshops these splendid works are issued, all of the same character, all overcharged, heavy and often awkward and unhandy; constructed by the architect, and of architectonic conception, and to these the bookbinder has finally lent his name.

These productions, both as to principle and execution, are complete failures; still they have effected some good, inasmuch as leather, if only of secondary or of even still less importance, has again begun to be treated artistically. The material, in its natural and appropriate mode of dressing, as Russia leather or as Eastern grained leather, regained its proper estimation and the art of embossing was restored, though the relief proved too high, too stiff, and too architectonic in design.

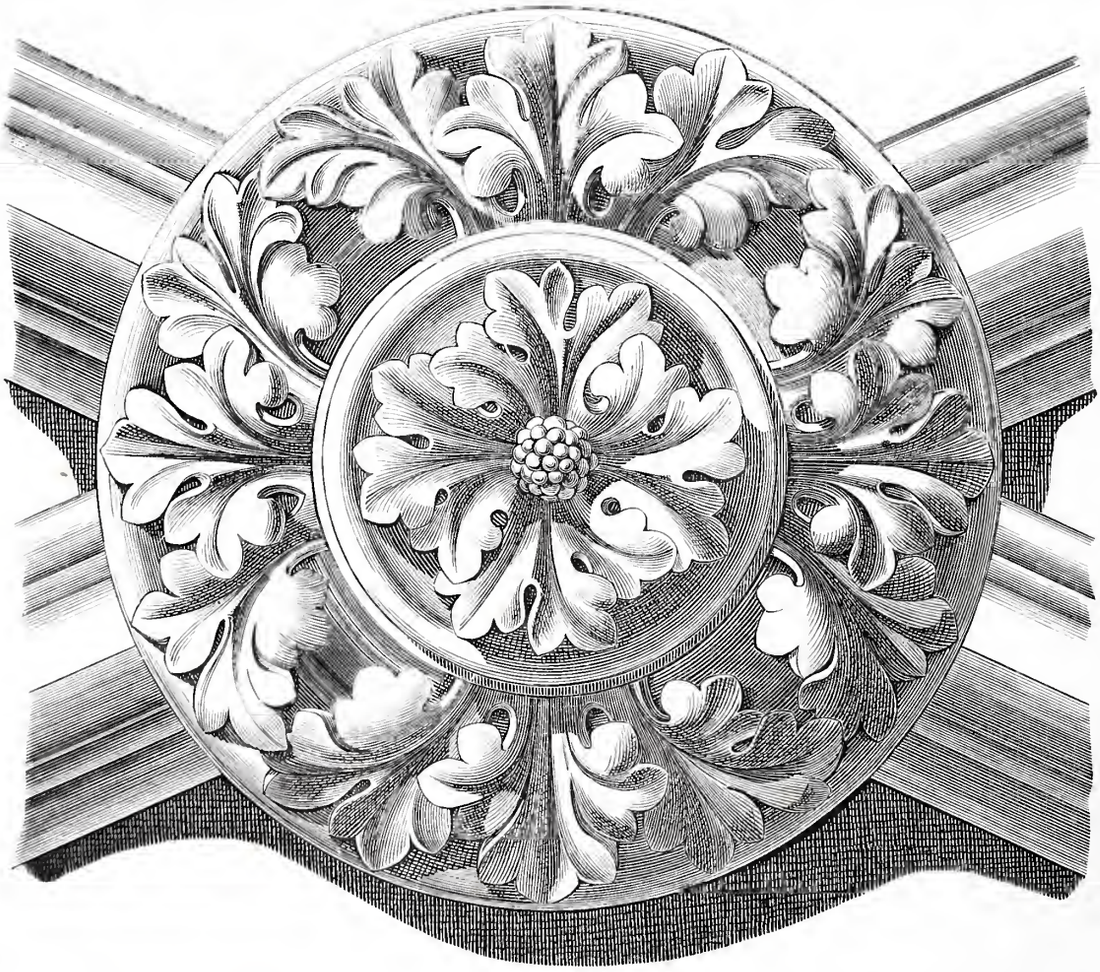
This sort of rich ornamental binding, this treatment of the leather, too high and ambitious in its aim, considering what was its simple object, necessarily caused a reaction, and the more so, as the latest endeavours for a regeneration of taste, tend all to the most natural expression of form. Either we had become over-refined and over-gorgeous, or, as in ordinary gold printing on cloth, too much addicted to false and vulgar glitter; and excessive gold printing, bad in design and with all sorts of wretchedly arranged figures, had to compensate for truly artistic, intrinsic worth.

(The conclusion in our next.)

Specimens of Ornamentation.



No. 1.

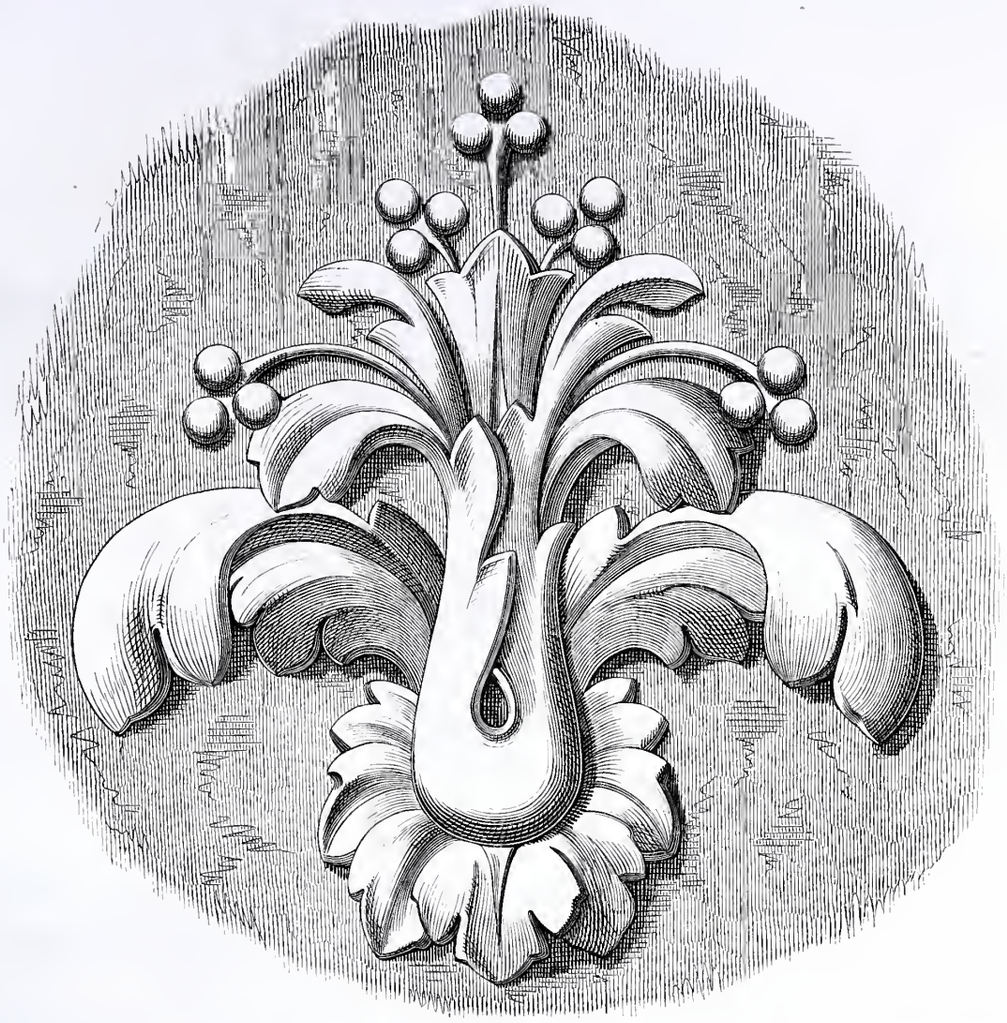


No. 2.

No 1. Mosaic from Monreale Cathedral near Palermo, close of 12th century. — The colors used in this pattern, a specimen of the *opus Grecanicum,* or glass mosaic, and eminently Moresque in character, are black, red, blue, gold and white.

No. 2. Early Gothic Key-stone, from the Sainte-Chapelle in Paris.

This beautiful church, one of the most perfect examples of the pointed style, was commenced in 1245. It is divided into an upper and lower chapel, the key-stone represented in our engraving belonging to the lower. It was designed and built by Pierre de Montereau to whom are due the chapel of the Château de Vincennes, and part of the Monastery of Saint-Germain des Prés at Paris, where he was buried in 1266.

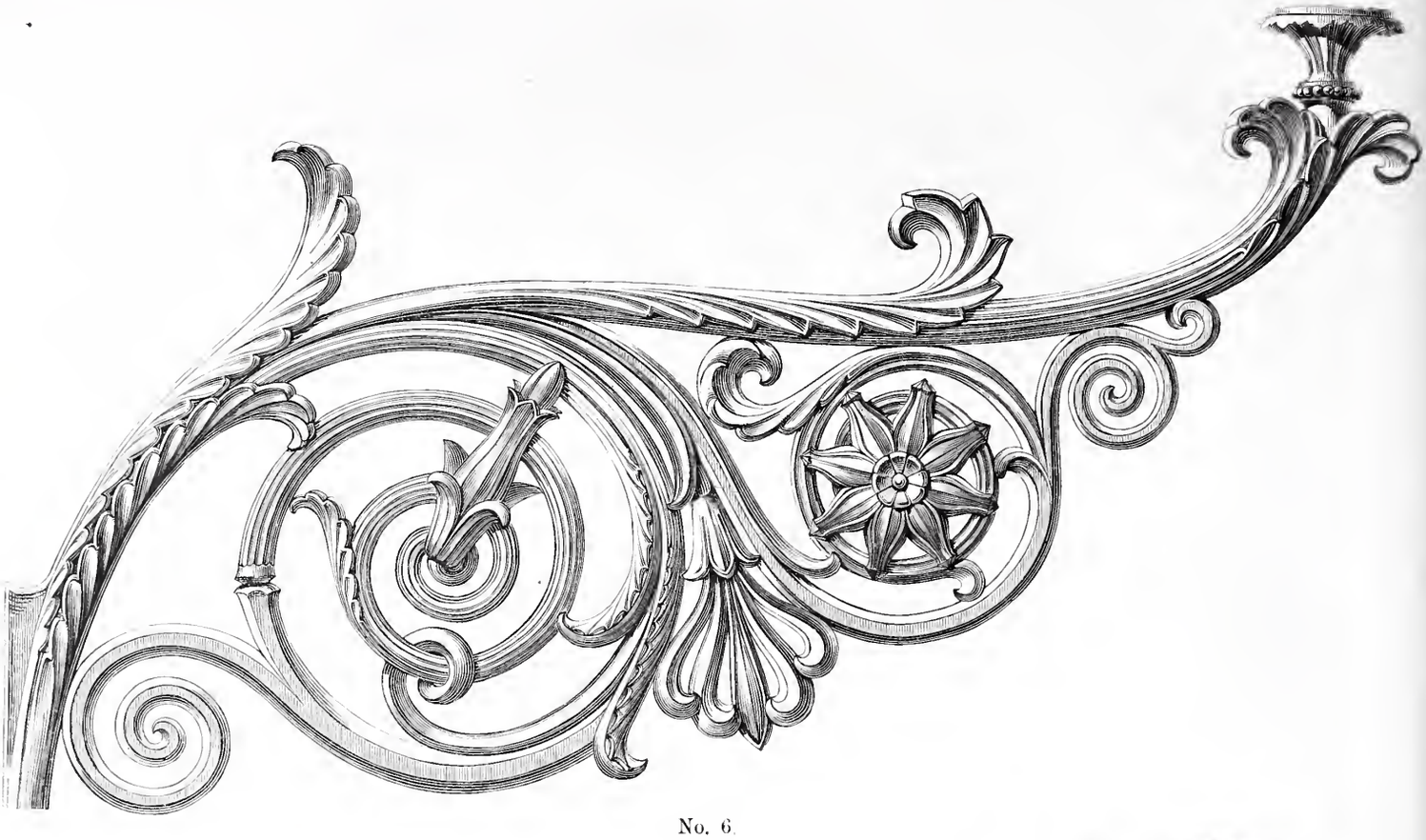


No. 3.

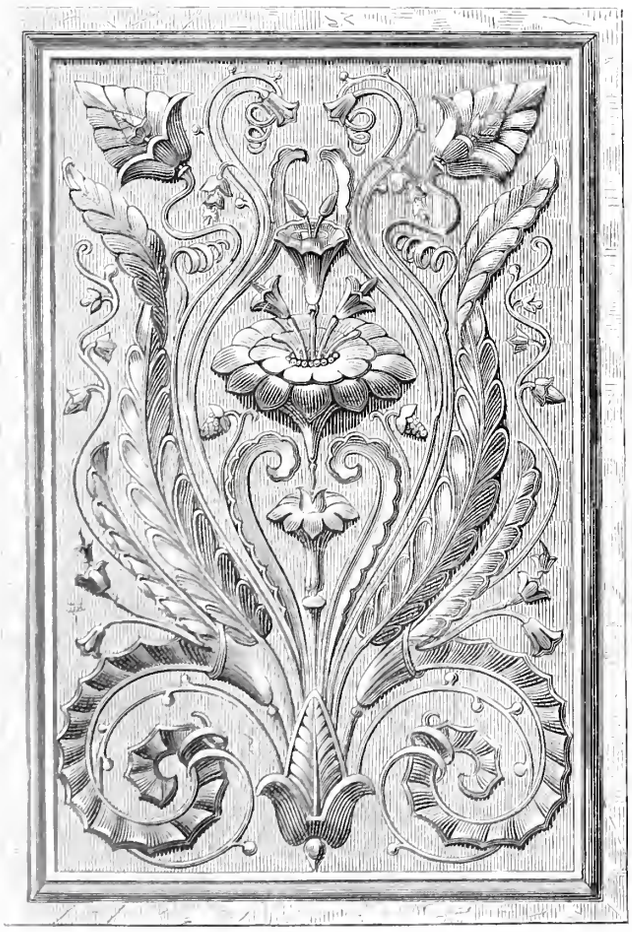
No. 4.

No. 3. French Renaissance; Floral Ornament from the Church of St. Paul and St. Louis, Paris (1627—1641). Style of Louis XIII.

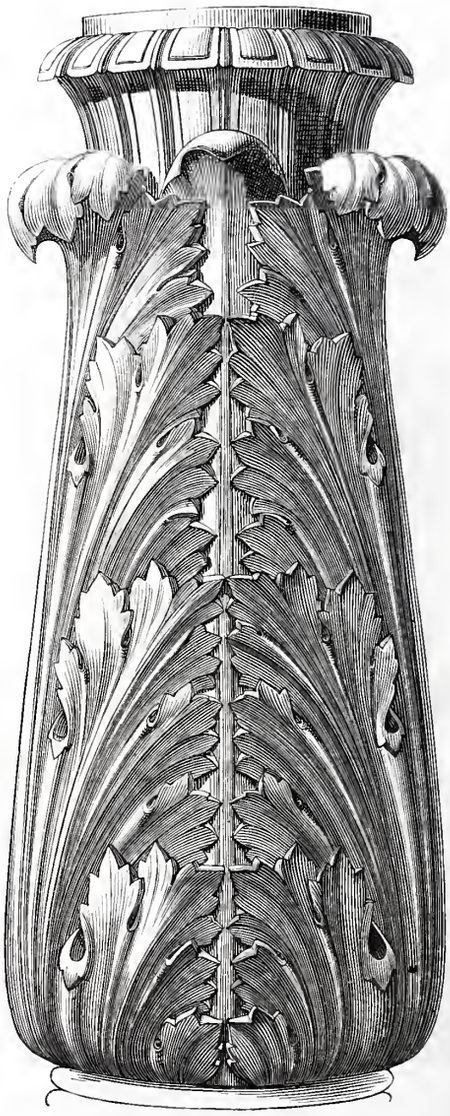
No. 4. French Renaissance; Portion of Cap over Windows of the former Hôtel Sully; 17th century.



No. 6.



No. 5.



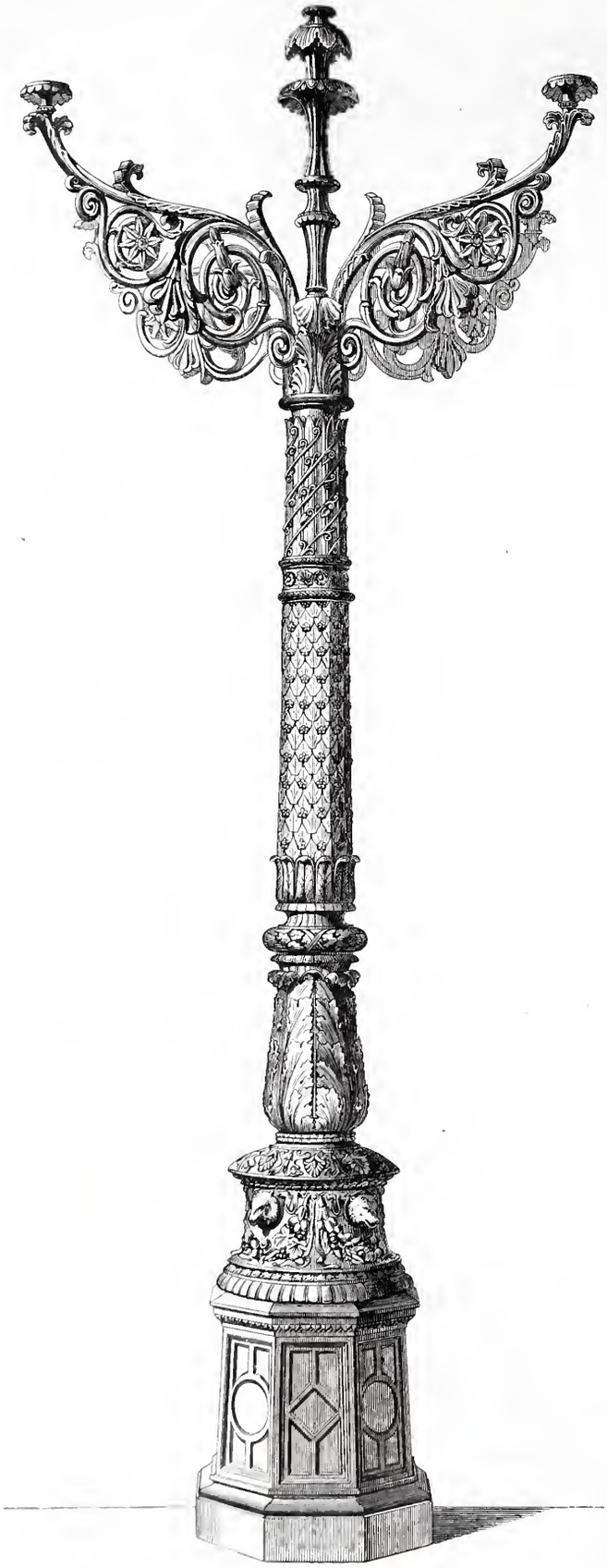
No. 7.

No. 5. Modern Panel Ornament in Stucco.

No. 8.

No. 9.

Nos. 6—9. Details of Candelabrum represented in No. 10.



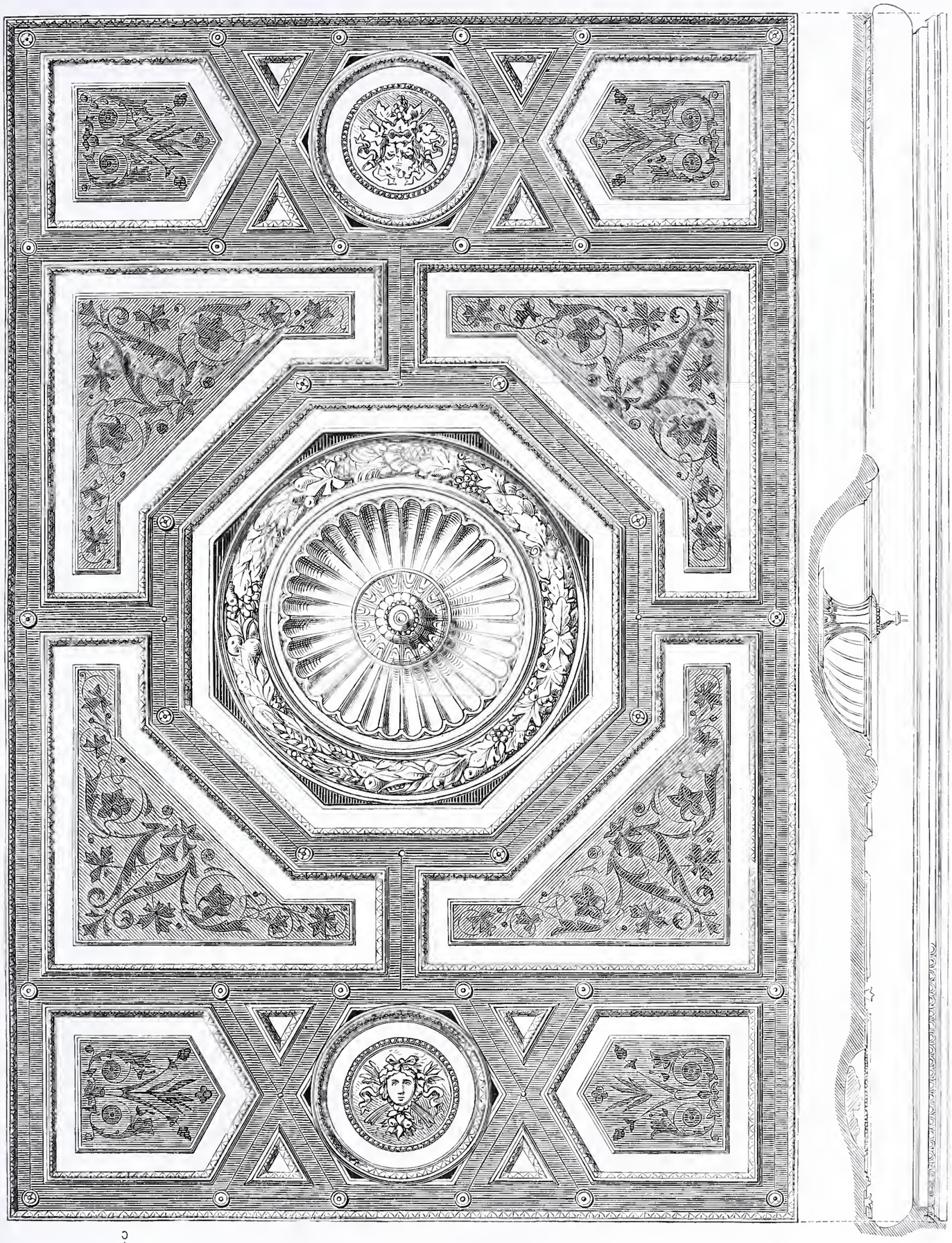
No. 10.

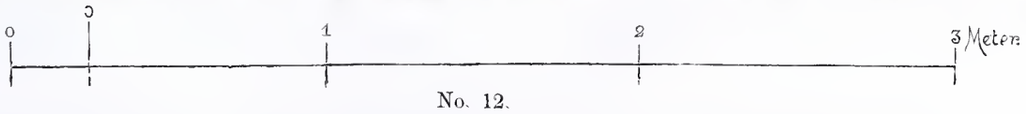
No. 11.

No. 10. Design for Bronze Candelabrum.

From the Paris Exhibition.

No. 11. Bronze Candelabrum with triangular base; Close of 16th century.
From the Italian section of the »Histoire du travail.«

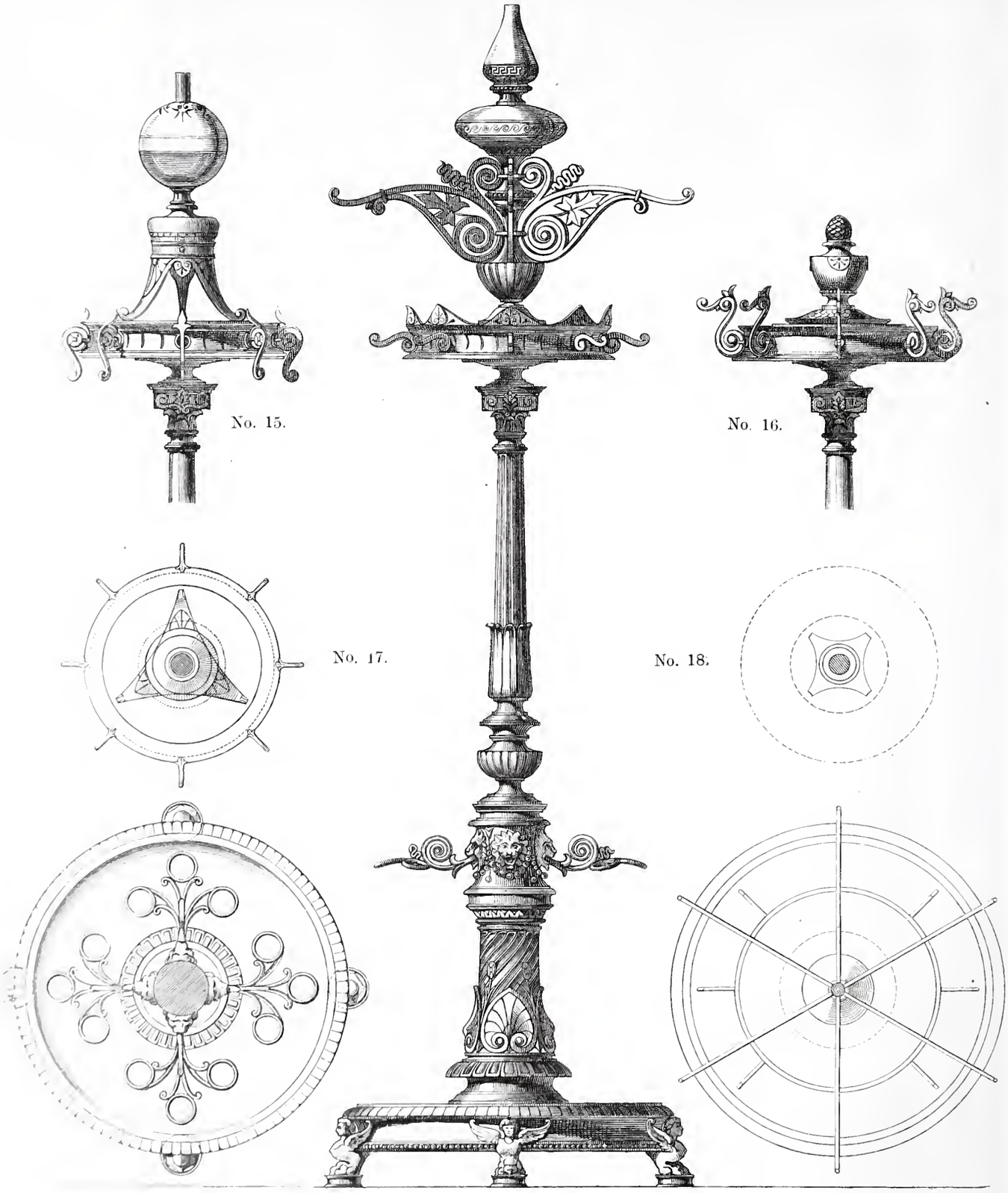




No. 12. No. 13.

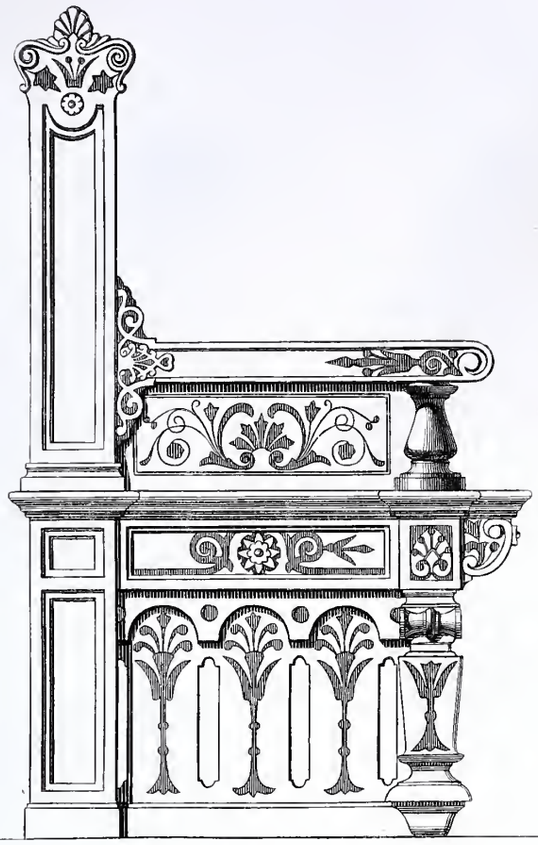
Nos. 12 and 13. Design of Wooden Ceiling for a Dining-room.

The walls of the dining-room are lined with wainscoting to two thirds of their height, above which block-printed paper hangings, dark green and framed with gold, extent to the upper cornice. The ceiling, inlaid in three different sorts of wood, shows dark-stained oak for the ornamented panelling, maple, but not too light in color, for the surrounding friezes or borders, and light oak for the geometrical framework, the main features of the ceiling. The small flowers are gilt and joined with fine tracings in gold; the small medallions, in relievo on gold ground, represent emblems of »Wine and Fruit.« The ribs of leaf or egg and dart mouldings, those of the centre-flower or shell, and the highest fillets are in dead gold, the panel ornaments traced by parallel gold lines.

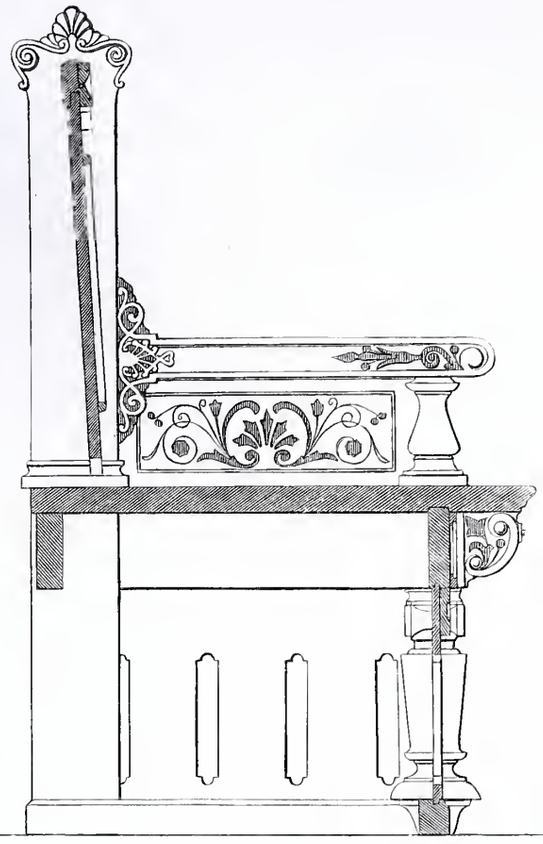


Nos. 14—20. Umbrella, Hat and Coat stand; in stained pear tree, imitation of ebony; elevations and plans.

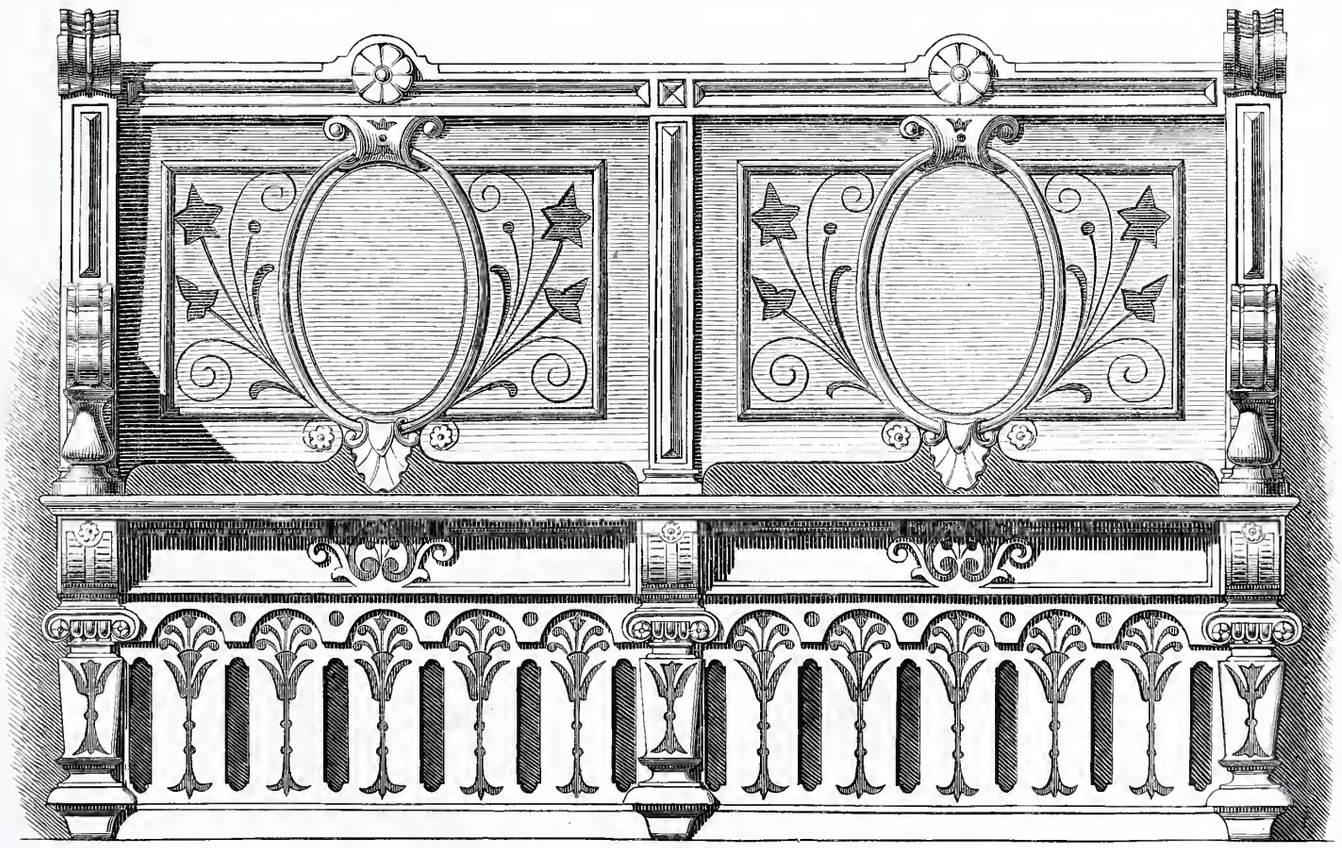
The plain mouldings are polished, if enriched with ornament they are rough as are also the flutings of the stem, the fillets, being polished; the small lions' heads with stick or umbrella holders, and the pegs for hats and coats oxydized bronze. If combined with a lamp, as in Nos. 14 and 15, it may serve as candelabrum in a central hall, while No. 16. shows a more simplified termination without lamp. No. 3 of supplement gives full-size details of the latter with suppression of the ornament.



No. 22.



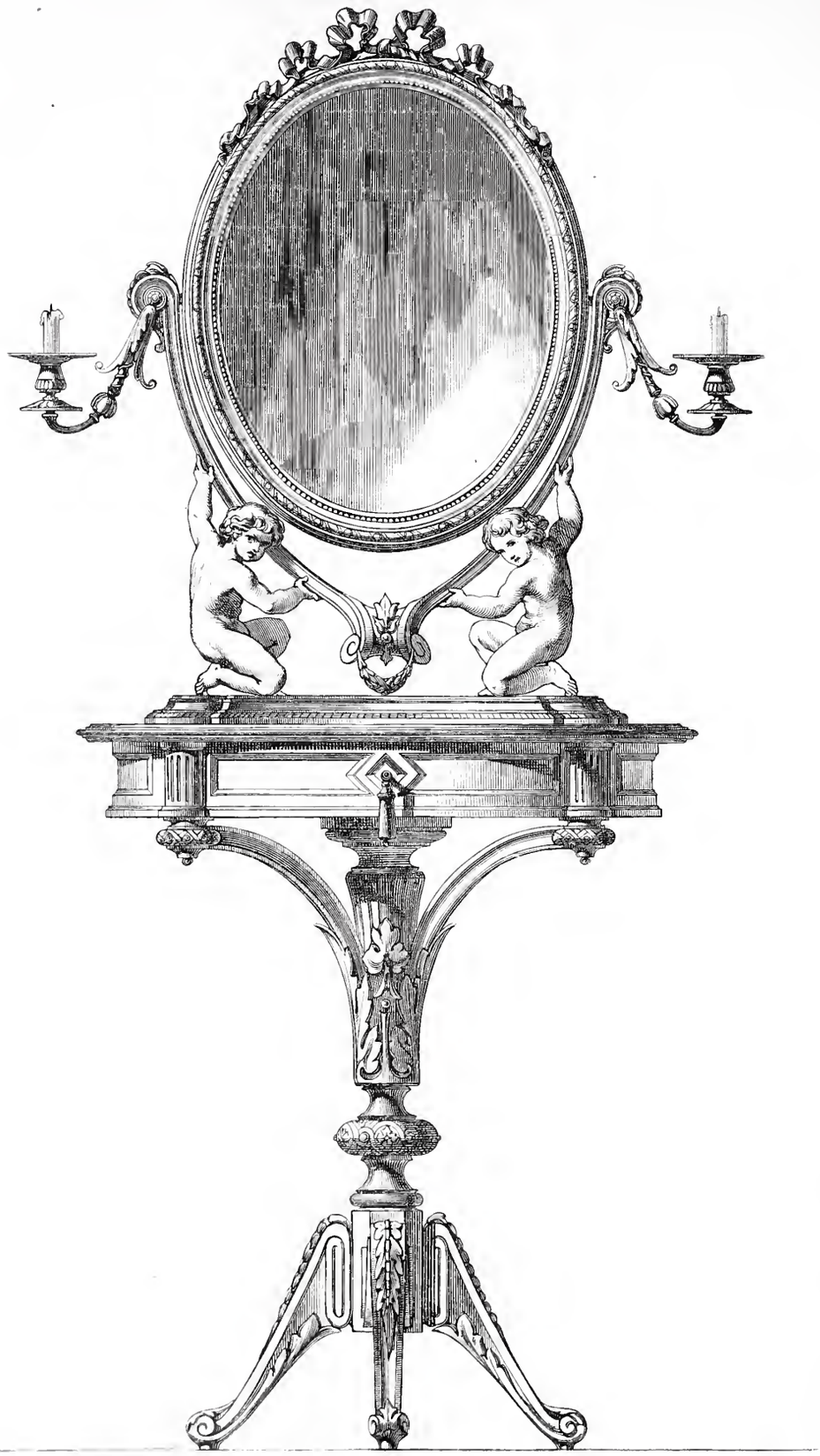
No. 23.



No. 21.

Nos. 21—23. Carved Bench in the Hall of the Railway-station, Stuttgart. — Front, side elevation and section.

For details see supplement, Nos. 1 and 2.

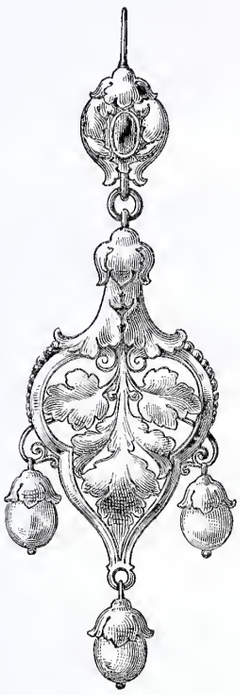


No. 24.

Toilet-table; with details in Nos. 4 and 5 of supplement.

No. 25.

No. 26.



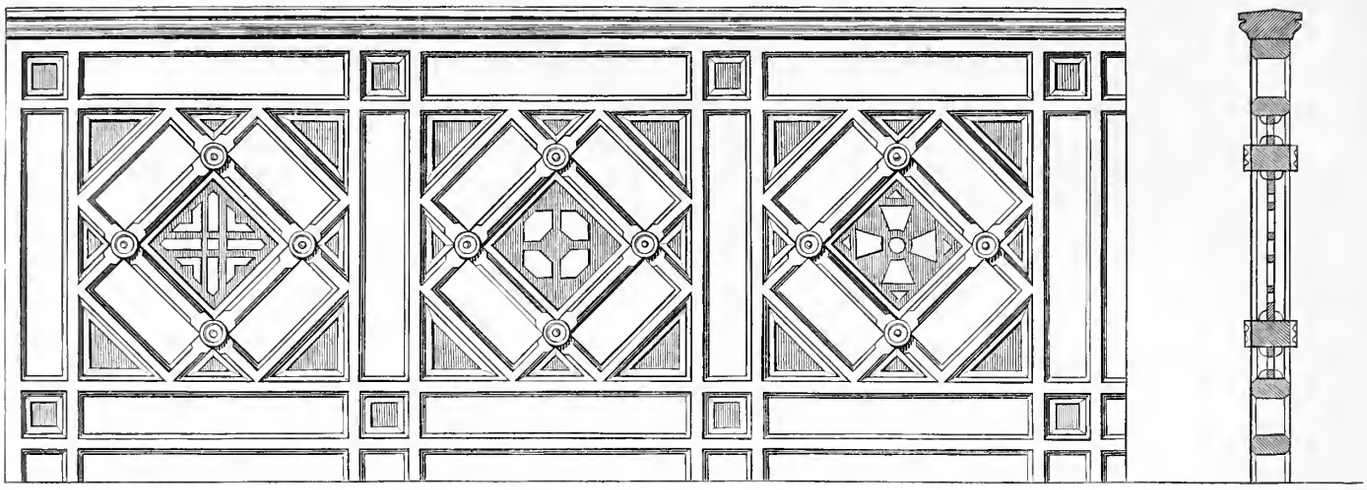
No. 27.

No. 29.

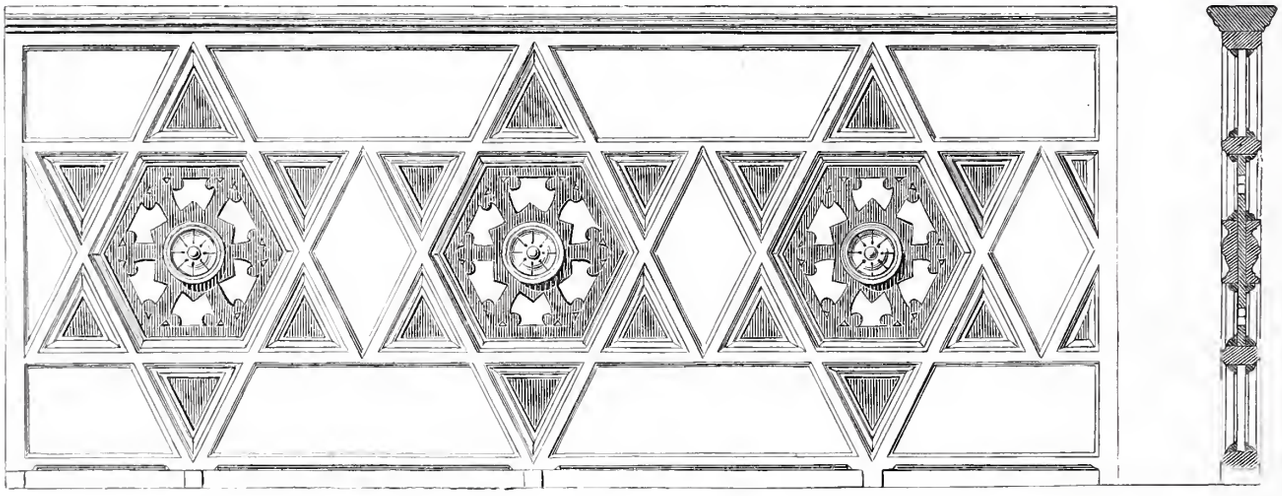
No. 28.

No. 30.

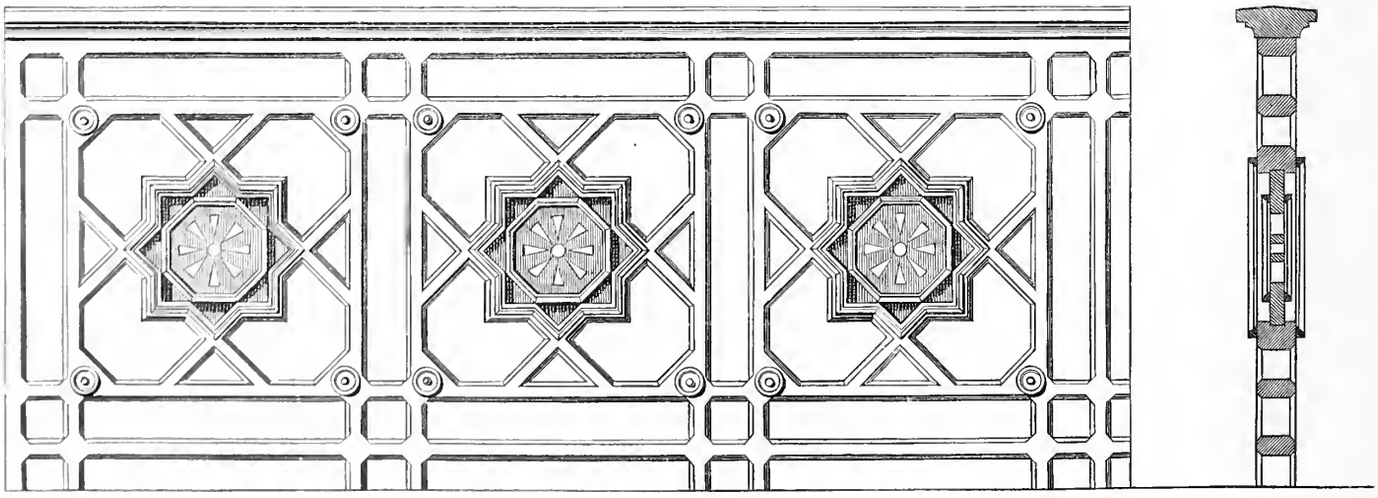
Nos. 25—30. Set of Jewellery, rings, ear-pendants, watch, bracelet and richly ornamented locket, to be worn on a chain instead of the brooch.



No. 31.

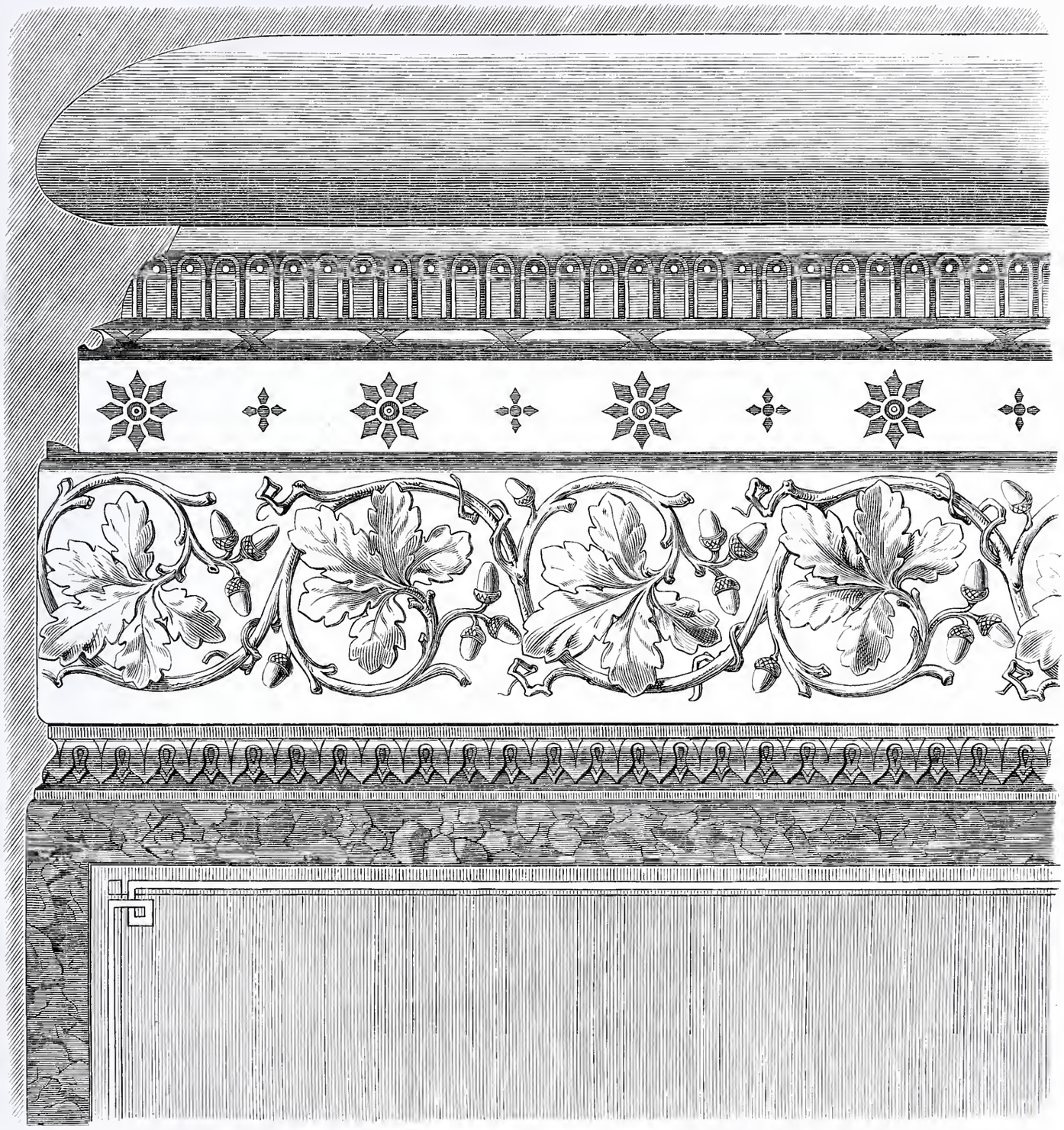


No. 32.



No. 33.

Nos. 31—33. Specimens of Wooden parapets.



No. 34.

Portion of Upper Frieze and Cornice for interior decoration.

VARIOUS.

Utilization of Tinman's Waste.

In the scraps of the tinshops, often thrown away by hundreds of tons by the tinmen of one single city, we possess two valuable metals, iron and tin. Attempts have been lately made for separating these metals by melting, but the process has been as yet without success. What physical action, however, could not do, chemical affinity will surely complete. We say this in regard to a process by which the sheet tin may be freed from its coating without being subjected to heat. The process is by first treating the scraps with a solution of caustic lye, thereby obtaining as a product a valuable color-base (stannate of soda, resp. potassa), which of late has come into extensive use among dyers. As both the iron scraps and the tin solution serve useful purposes in the arts, we trust that many of our readers will be interested and instructed if we devote some space to the above subject.

Preparation of Stannate of Soda. — For fastening and brightening dyes especially Turkey red from madder, stanuate of soda is unsurpassed by any mordant; it is furthermore not poisonous, as is the double salt of arseniate and Stannate of soda a base hitherto employed to some exteut for fixing fabrics. For its preparation the tin craps are rolled up spirally and put in a wooden tub with 10 per cent. of sulphur, and 5 per cent. of solid caustic soda (in manufacturing the resp. potassa salt, take 7 lbs. of the latter), enough water being added to cover them. Then steam is turned on and the same allowed to pass into the liquid, until the scraps are free of tin, when the alkaline liquor is drawn off by a faucet and left to evaporate in an iron kettle until crystallization takes place. From the crystals which simply constitute glauber salt, the mother lye is separated, evaporated to dryness in another vessel, leached out by water and filtered. The product thus obtained is left to crystallize, thus forming the stannate of soda; 100 lbs. of scraps yield 12 to 15 lbs. of the latter.

Preparation of a New (Tin) Green. — This paint which we propose to call »Phenician green«, because its base, the tin, was first obtained by the ancient Phenicians is not poisonous like Paris and other greens, it does not bleach; may be used as lime and water color and deepens in oil. It is prepared by adding a solution of stannate of soda, made of 15 parts of the dry substance to one consisting of 12 parts of blue copperas. The precipitate obtained is collected and washed out; by adding chrome yellow or a decoction of fustic a blue shade may be imparted to it.

Preparation of Mosaic gold. — Bisulpharet of tin forms gold-colored translucent scales, of a peculiar soapy feeling. It is largely employed in bronzing wood. The following is a description of its mode of preparation from tin scraps. Put the scraps in glazed pots, cover them with muriatic acid, and when the tin is all taken up, transfer the liquid into another vessel. Should it yet contain free acid, add new scraps. Then immerse copper plates into the liquid; the tin will thus by galvanic action precipitate upon them as a spongy mass. Collect the tin, wash it with water, dry it and mix it intimately with equal parts of sulphur and salammoniac, fill the mixture into glass retorts and heat them up gradually on a sand-blast. The bronze is obtained partly as a sublimate, partly at the bottom of the retort.

For the Manufacture of Copperas. — This process is too well known to be described.

Preparation of a New Polishing for Optical Glasses. — This is obtained by precipitating a copperas solution by oxalic acid, and drying and heating the precipitate.

Preparation of „Iron Green". — First prepare Prussian blue by mixing a solution of copperas with one of yellow prussiate of potassa, dissolve the same in oxalic acid, and add to the resulting blue liquid a solution of bichromate of potassa and a small quantity of sugar of lead. Collect the green precipitate, wash it out and dry it. Any intermediate shade may be obtained, from the deepest blue to the brightest green, by varying the proportions of the three solutions. In closing, we will mention that zinc and cadmium are thrown down in a dentistri from a solution of binoxide of tin in potassa (Scientific American.)

Machinery for the Manufacture of Wood-pulp for Paper making.

Many very interesting samples of paper manufactured from wood have been shown at the Paris Exhibition. The invention is not new, but the processes by which the fibres are treated, the method of whitening the material and converting it into a pulp for the manufacture of excellent paper, have only now been successful. The machinery is driven by three portable engines, of the united power of 50 horses. It consists principally of the »defibrer« or grindstone, by which the wood is reduced into fibre, whilst water is continually running over it. The wood is held firmly, and pressed against the stone by a self-acting mechanism, and ground into a mass of fibre. It then passes through a coarse sorting apparatus, in which the splinters of wood are removed. This apparatus separates at the same time the coarse part of the fibre, and conducts it to the refiner, and it also serves for the mixing of the coarser pulp. The refiner consists of a pair of millstones, between which the pulp is ground; it theu passes to a sorting apparatus, consisting of a series of cylinders, covered with wire gauze. The different qualities of pulp are sorted according to the degree of fineness, and delivered into tanks. Eighty of these machines have already been constructed, and supplied to various parts of Europe, and the factories in operation in France and elsewhere are preparing daily from 1,000 to 2,000, and in some instances, 10,000 kilogrammes of pulp per day from wood, for the production of white paper. Hitherto there has been great difficulty in producing paper from woody substances, on account of it not receiving ink and pressure without deterioration.

Enamel on Iron.

Years ago thoughtful ornamentists might have been struk by the application of enamel to our most common culinary utensils, stewpans, pots, kettles, indeed every article formed of iron and intended for cooking. This manufacture has, as might have been expected, resulted in the production of plates and panels with surfaces sufficiently fine for the reception of paintings as minute in finish as the rare works of the most eminent French enamellists. The difficulty of enamelling on metal is occasioned by the unequal expansion of the metal basis and the enamel surface; but this constant source of danger, very frequently of utter ruin to valuable paintings, has been obviated by Mr. Bough, the inventor of the process, whose enamel expands and contracts equally with the iron plate on which it is laid; and thus the process admits of the preparation of panels of any size. But the value of the invention is its cheapness and adaptability to the enrichment of an almost endless catalogue of domestic utilities, as finger-plates, door-handles, name-plates, ornamental panels of every kind, etc. In all ordiuary cases the design is printed on the plate, then colored by hand, and afterwards submitted, as usual, to the furnace. But in the production of large plates we see a new era opening in enamel ornamentation. (The Art-Journal.)

The Workshop.
A Monthly Journal, devoted to Progress of the Useful Arts
EDITED BY
PROF. W. BAUMER, I. SCHNORR AND OTHERS.
VOL. I. No. 5.

BOOKBINDING AND FANCY LEATHERGOODS.*)

Archæologists, and such artists versed in Archæology as principally cultivated Mediæval Art, and exercised great influence on the regeneration of modern taste, were the first to aim at a reformation in this branch also. But here they met with the same fate as elsewhere; they gave the impulse, but fashion soon left them far behind. Some single specimens of great magnificence, successfully illustrative of mediæval art, might be produced, but practised on a large scale it could not but soon be discovered that the mediæval style, either in metal-work, or only embossed leather-work, was no longer quite appropriate. Simple and plain binding in leather as practised in the second half of the 16th, and in the first half of the 17th century, with stamped and partly colored ornament, had to be resorted to as being both artistically and practically the most appropriate. Here in fact are the models to be sought, for a revival of bookbinding and its generic arts.

We are not able to say whether this revival was initiated by the English or the French. The first bookbindings we have seen of the kind were English. In last year's Paris Exhibition, many examples of French bookbinding, especially those of the well known literary institution of Mame and Son at Tours, showed that this path had been energetically and most successfully pursued. A great number of the bindings were appropriate, neat, showing harmony in color, and good, sensible ornamentation applied to the right place and their execution enriched with arabesques of extreme delicacy; only sometimes the arbitrary character of French art injured the general effect. These productions, in spite of their simplicity, were far in advance of all the pomp and splendour which the Vienna and Berlin manufacturers had displayed in their works.

By turning back into the true path, this regeneration of the old craft of bookbinding has not only helped to restore leather to its former place of honor, but has also led to a true appreciation of this material in another industrial department, viz., in Upholstery. Our modern patrons of Mediæval Art had an idea that leather had been the real covering for castle furniture and fittings during the age of chivalry. But although this was not the case, since it was only in the 16th century that furniture began to be fitted with fixed cushions, still it cannot be denied that, considering the weight and massiveness of our modern mansion-furniture, leather is an entirely appropriate covering, and is especially suitable for similar modern articles of constructive design with any pretence to solidity and stateliness. This leads however to a question as to its ornamentation. Leather, either in its natural hue, or artificially colored, each quite commendable in the right place, was not thought sufficient when a certain richness was required. The pillows and fixed cushions of the 16th century which have been preserved, show delicate ornamental gold-printing, corresponding to the contemporary bookbinding already described. It was not until the 17th century that a broader treatment of ornamentation arose, which, in its development, adopted the quaint scrolls and lines of the Rococo, combined with stamping in relief, gold and various colors.

This last system was revived again by our modern Mediævalists; they introduced stamped leather with conventional mediæval ornaments, only they fell into the mistake of making the relief too high, which, at least in furniture intended for sedentary purposes, was offensive to good taste. Still, this also has modified itself; and, in the last year's Paris exhibition, we were pleased to see chairs of English workmanship, with leather covers enriched with ornamental goldprintings without relief, specimens which may be held up as models in every respect.

A very different development has been given to leather hangings, a branch of industry closely associated and connected with the above. These also were thought to be of more ancient origin than they really are, the 17th century being the date in which they flourished. Their reintroduction was attempted simultaneously with the promotion of Mediævalism, but the necessity of providing a cheaper substitute soon made itself apparent

*) See p. 49, *ante*.

the application of the real material to the large areas to be covered proving too expensive. Hence it came that the treatment in general, the stamping in low relief, gilding, and coloring were retained, but the stuff itself underwent a change; stiff paper and paper stuffs replacing the leather. Such imitations of leather were to be seen at the exhibition in the French, English and Belgian departments. The English specimens which differed most materially from the original, were the most successful in color and design, the French examples keeping too closely to the typical scrolls and ornaments of the 17th century, the coloring being too heavy, dull and indistinct in tint.

In hangings therefore leather had to give way to its substitutes, while in the whole department of small fancy articles, viz., dressing cases and bags, caskets and boxes of all sorts it has achieved even more than its due portion of success and now vies with porcelain, metal, wood, etc. It has already been stated that towards the close of the middle ages, leather with a sort of, incised or rather engraved ornamentation, had been much in favor for the objects just referred to. This was quite a legitimate style of decoration, and it must therefore be regretted that with the alteration in bookbinding it fell into oblivion. It even seems that leather was supplanted in this branch at an earlier period by a less solid substitute, in as much as boxes and cases of cardboard, with all sorts of decorative works of paper and papier-maché applied to it, and somewhat later covered with silk, satin, or embroidery are of a rather remote date. This latter system of decoration, affording a free scope to ladies' skill, was in high favor during the 18th century, and threw leather completely into the background.

It is therefore but fair that this material should have recently come into favor again in the industrial department of fancy articles; still a judicious and true system of artistic decoration and treatment ought to be observed. But we are sorry to say that there is still much room for improvement, a tendency to overdo it being apparent. For the material having come into fashion, the manufacturer thinks himself sometimes justified in using it everywhere and always, and even in frequently descending to an imitation of it, where it is utterly out of place. Thus we have seen at the Paris exhibition and elsewhere, articles of wood, e. g., frames, knifehandles, even candlesticks all covered with, or being made to represent leather; porcelain cups with leather brims, metal mounts and bands, nay even some articles of jewellery converted into straps. This is just the reverse of right, and we must strongly protest against any such imitations, since the articles similar to these alluded to, ought, in accordance with their nature and destination, to be suggestive of strength and support; for which reason, instead of being, in reality or in appearance only, of a soft and supple material, they ought to be strong, stiff, and hard.

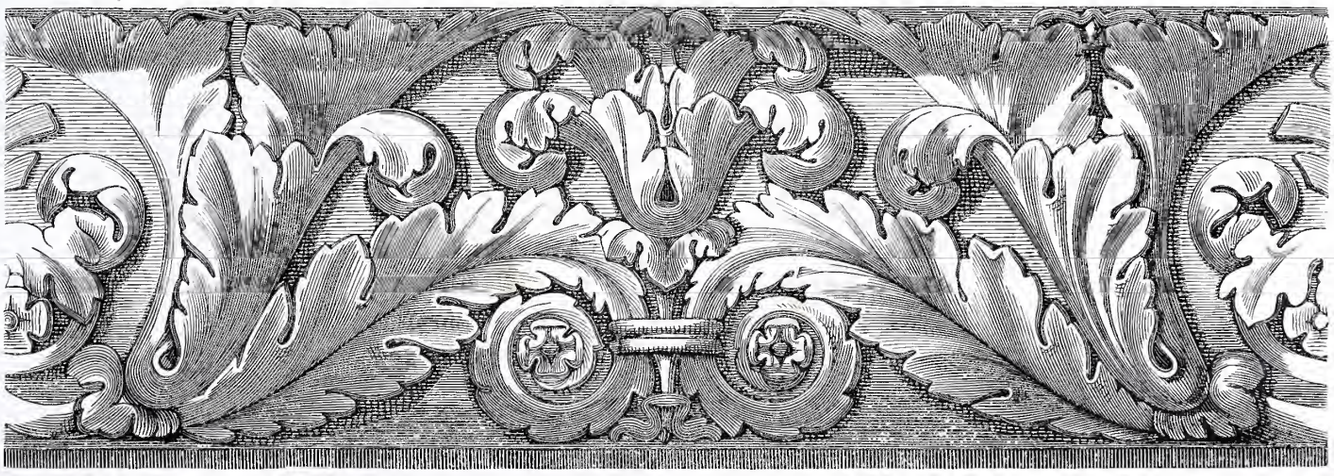
Such misapplications of leather, even if only in semblance, must of course be thoroughly discarded, and the manufacture be governed again by common sense. In this however there are great difficulties to be encountered; for in the first place, these articles are unfortunately looked upon as mere things of fashion, and not of true beauty and good taste. The increasing demand and the consequent competition require for each season new forms and inventions without any regard to the sense or folly which dictates the idea, or to their beauty and conformity to their purpose. To-day calfskin is the fashion, to-morrow hogskin, to-day it is red, to-morrow blue, then green; to-day bags, purses and cigar-cases are of tanned and dressed skins, to-morrow we find them in all their original roughness.

Against colored leather in itself, we have nothing to object, but in the first place color must not be subjected to fashion, and in the second it does not suffice by itself. The different sorts of grained leather, cordovan, shagreen, morocco, Russia leather, etc., can certainly be turned to good account, but their application ought to be more manifold and artistic.

First, slight relief ought to be reintroduced for these fancy leathergoods, though certainly neither embossed leather with figure subjects which has also been attempted, nor flower pieces formed by raised leaves glued together. This fashion of once greatly favored ladies' work is quite out of place; but a sort of low relief decoration in the style of book covers of the 16th century, cold-pressed or stamped with elegant lineaments and arabesques in gold would be most appropriate. Then the free and delicate ornamentation, mostly finished by artistic work of hand, of the 14th and 15th century, consisting in incising, underlaying, and engraving the leather, would be worthy of reintroduction, although not easily made by machinery. Nor is coloring and painting the leather relieved also by gold, to be rejected, better still if painting is replaced by embroidery in silk and goldthreads, or by thin, colored stripes of leather. Even leather mosaic might be advantageously introduced, though not in the way illustrated by the latest fashion, which imitates the *"email cloisonné"* by silken flowers with contours of metal bands. This is again a misconception of the material and its inherent properties. The mosaic we mean, which is often a mere plaiting, is met with in the leather works of the East Indians and other Oriental nations, and similar productions are found among the American Indians, Mexicans, and other races of Spanish origin. As a rule ethnographic collections must be studied, if Art-Industry is to be marked by beauty of style and perfection of taste; for we find that Oriental, and chiefly uncivilized nations proceed with a keen perception of conformity, truth and artistic display; thereby furnishing works highly suggestive to the artist by profession. But though we are little used to regard these collections in such a practical light we shall have to learn to do so; for a closer study of them, in connection with the sources from which they are derived, might conduce very essentially to bring back our Art-Industry, now so loose and systemless in matters of ornamental Art, into the right path.

Specimens of Ornamentation.

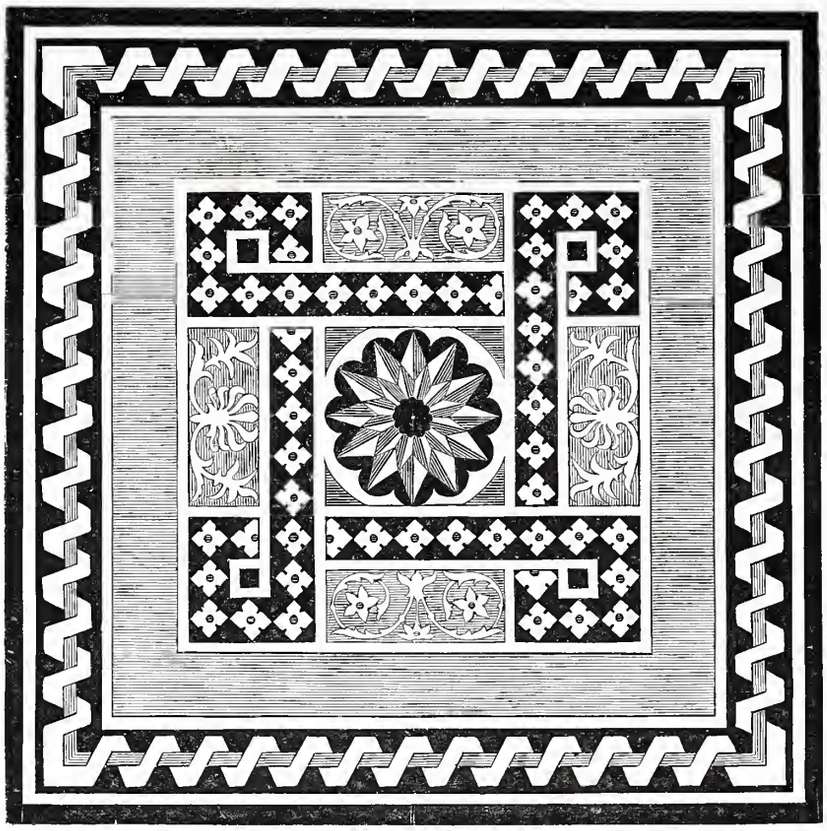
No. 1.



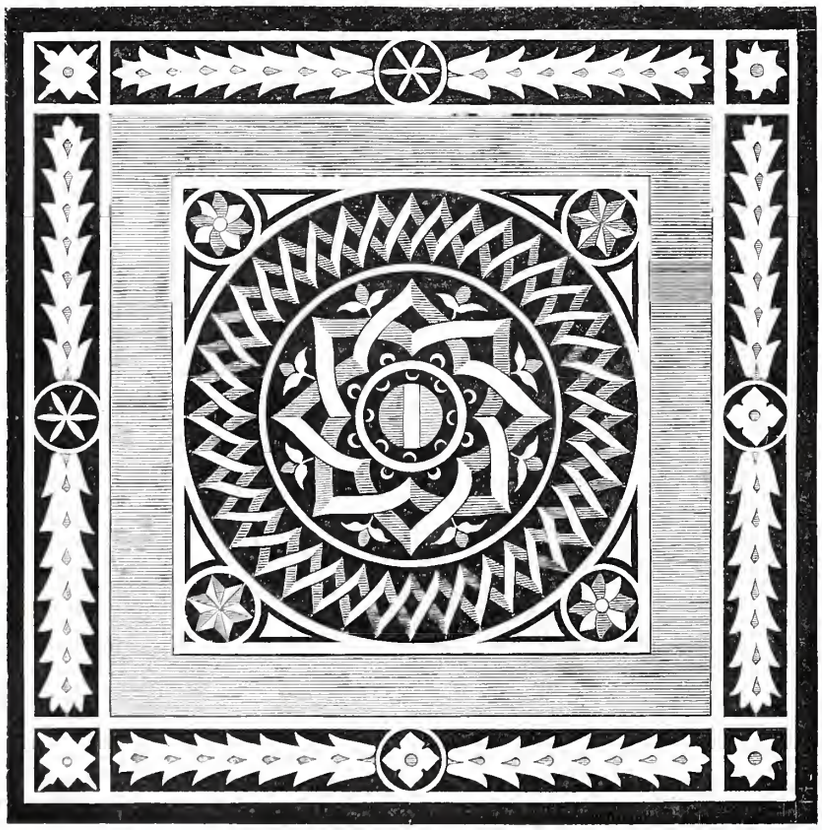
No. 2.

No. 1. Roman Style; Marble Flower from the Forum of Nerva; worked between the modillions in the under side of the corona of the Corinthian cornice.

No. 2. Roman Style; Richly ornamented Carvings in marble; on the cyma, or crowning member of the Corinthian cornice of the Temple of Jupiter Tonans; (12 B. C.)

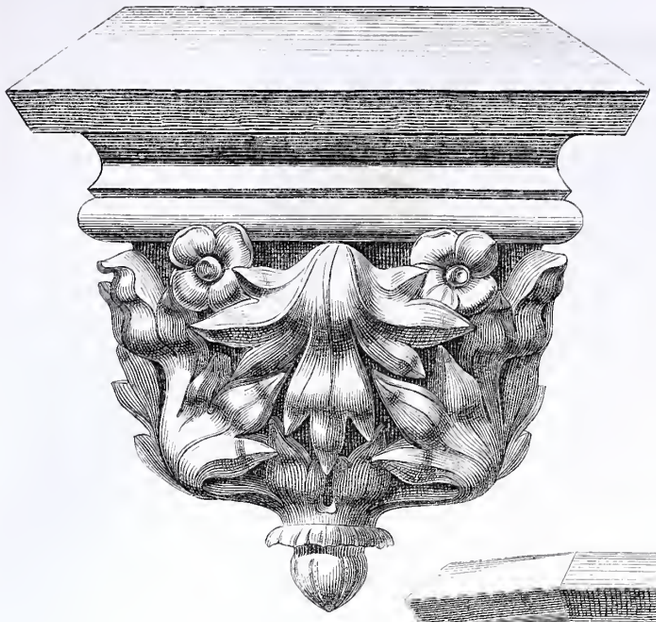


No. 3.



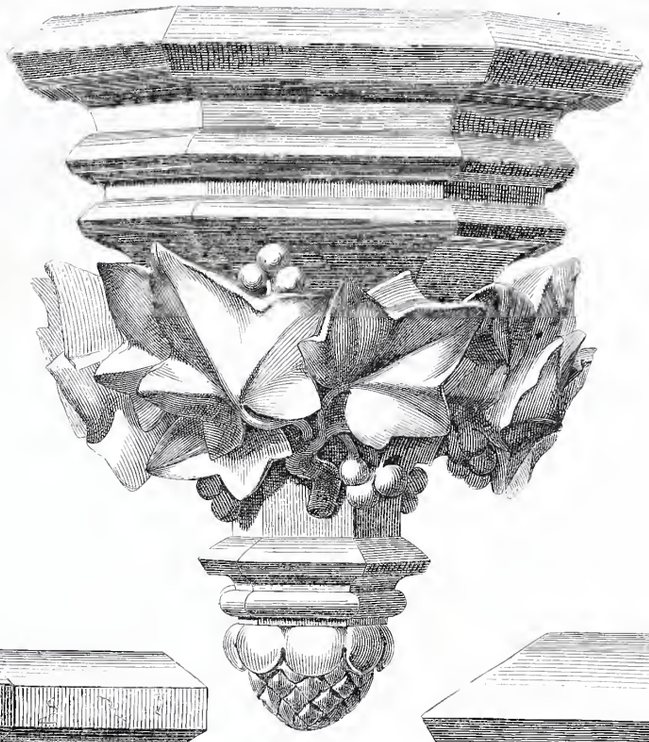
No 4.

Nos. 3 and 4. Marble Mosaic, forming pavement of Lucca Cathedral (1204); red, white, and black marble employed in the pattern.



No. 5.

No. 6.



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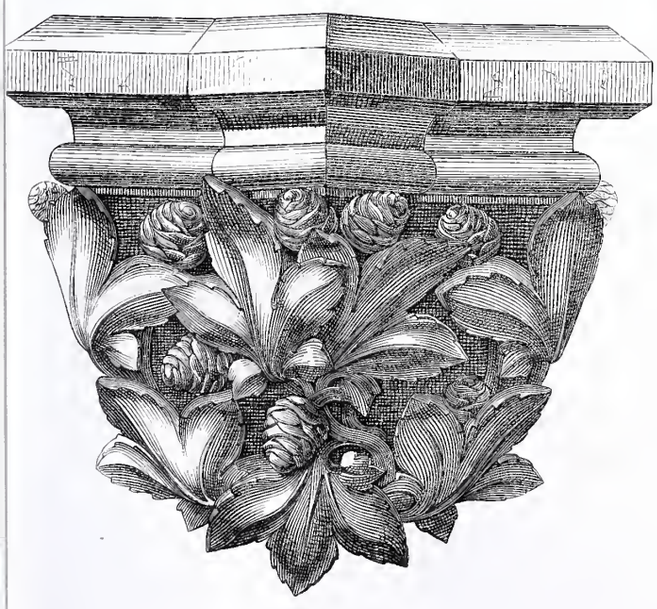


No. 8.

No. 9.

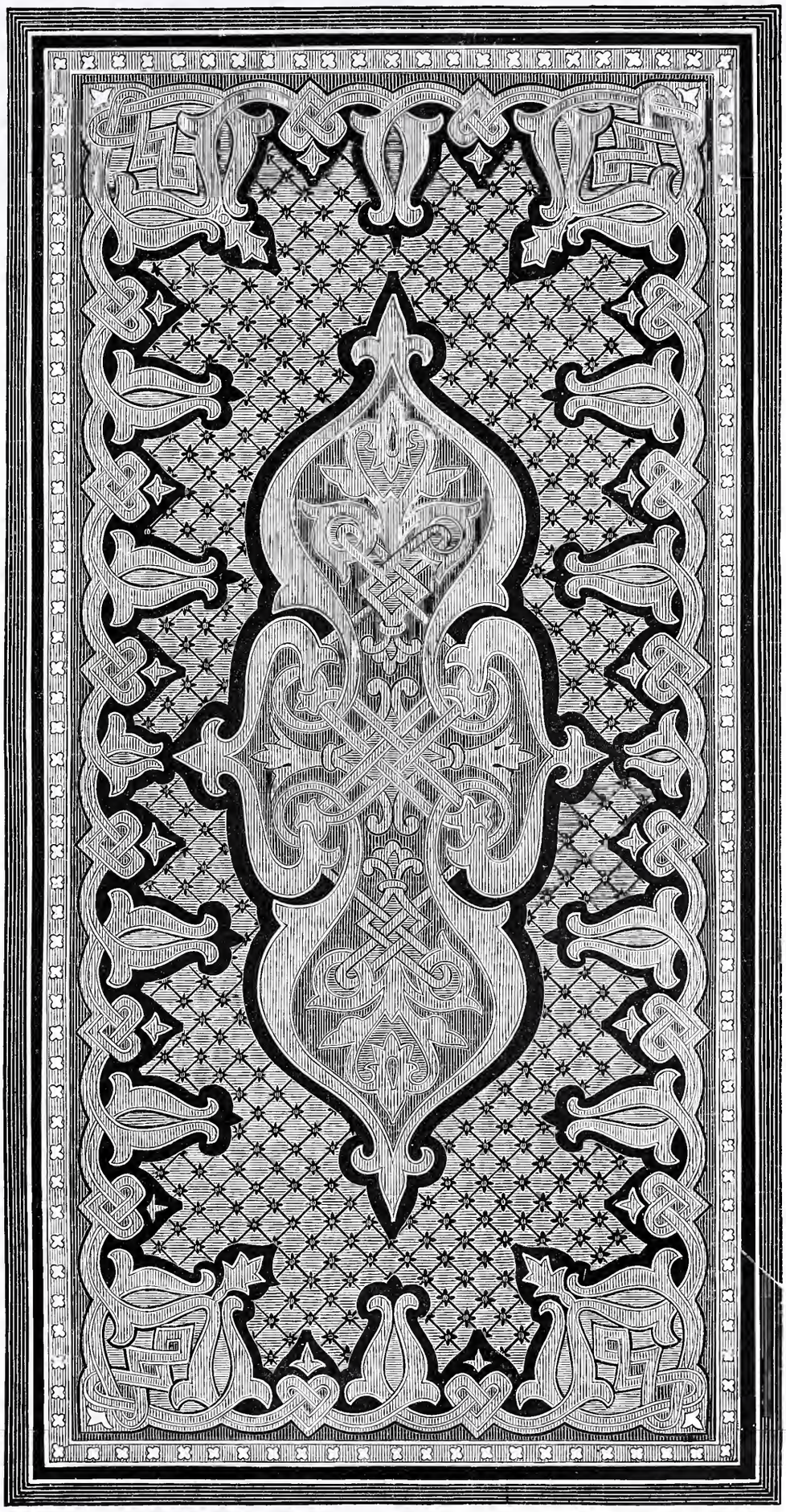
Nos. 5—9. Corbels for the Restoration of the Church at Demmin; (Prussia).

No. 10.

No. 11.

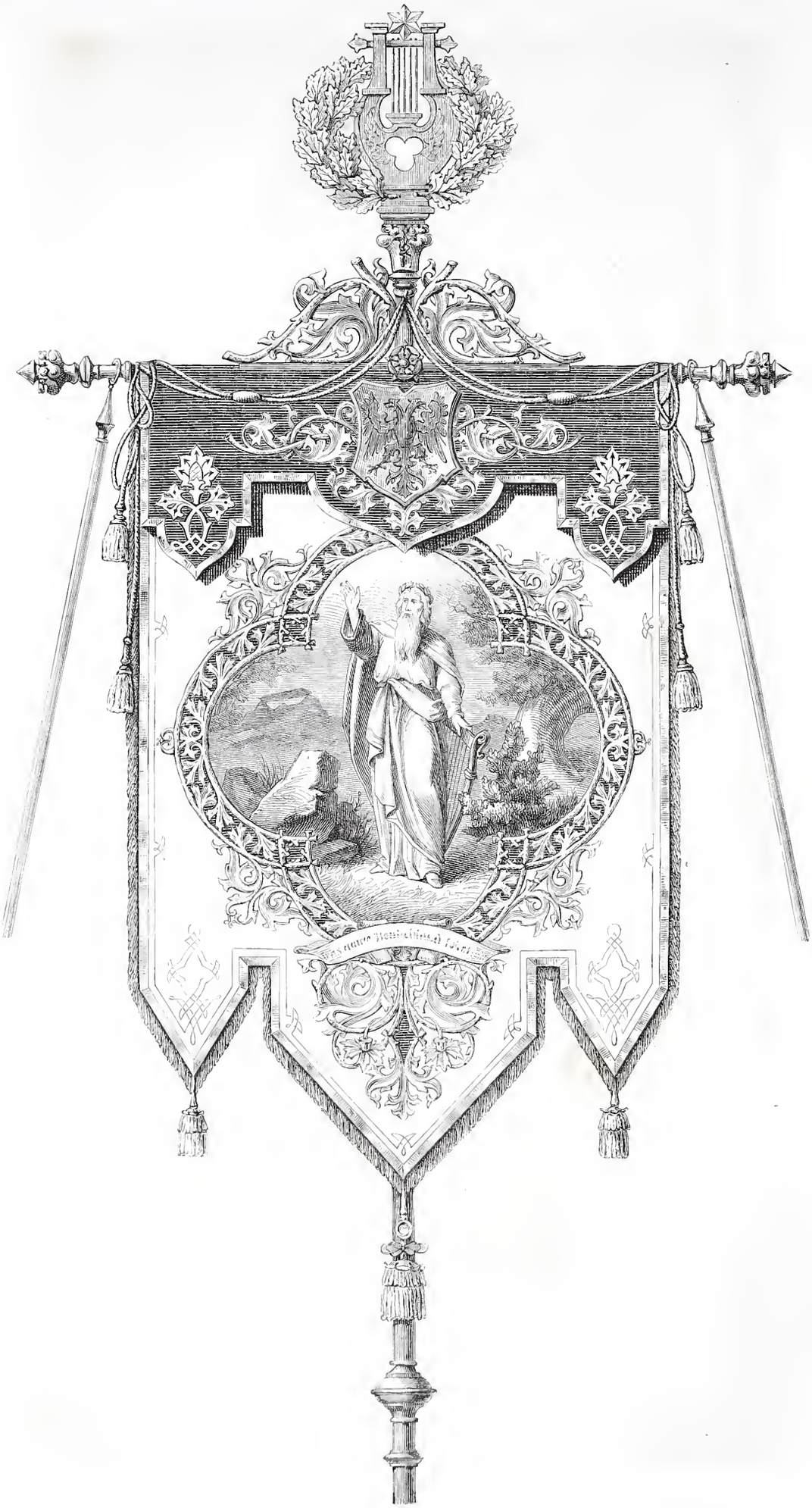
No. 10. Modern Decorative Carvings; for execution in marble or alabaster; a square panel 0.465 m in length and breadth.

No. 11. Ornament for the Decoration of a Flower Vase; executed by the process of enamel-printing in gold with red outlines on blue ground.



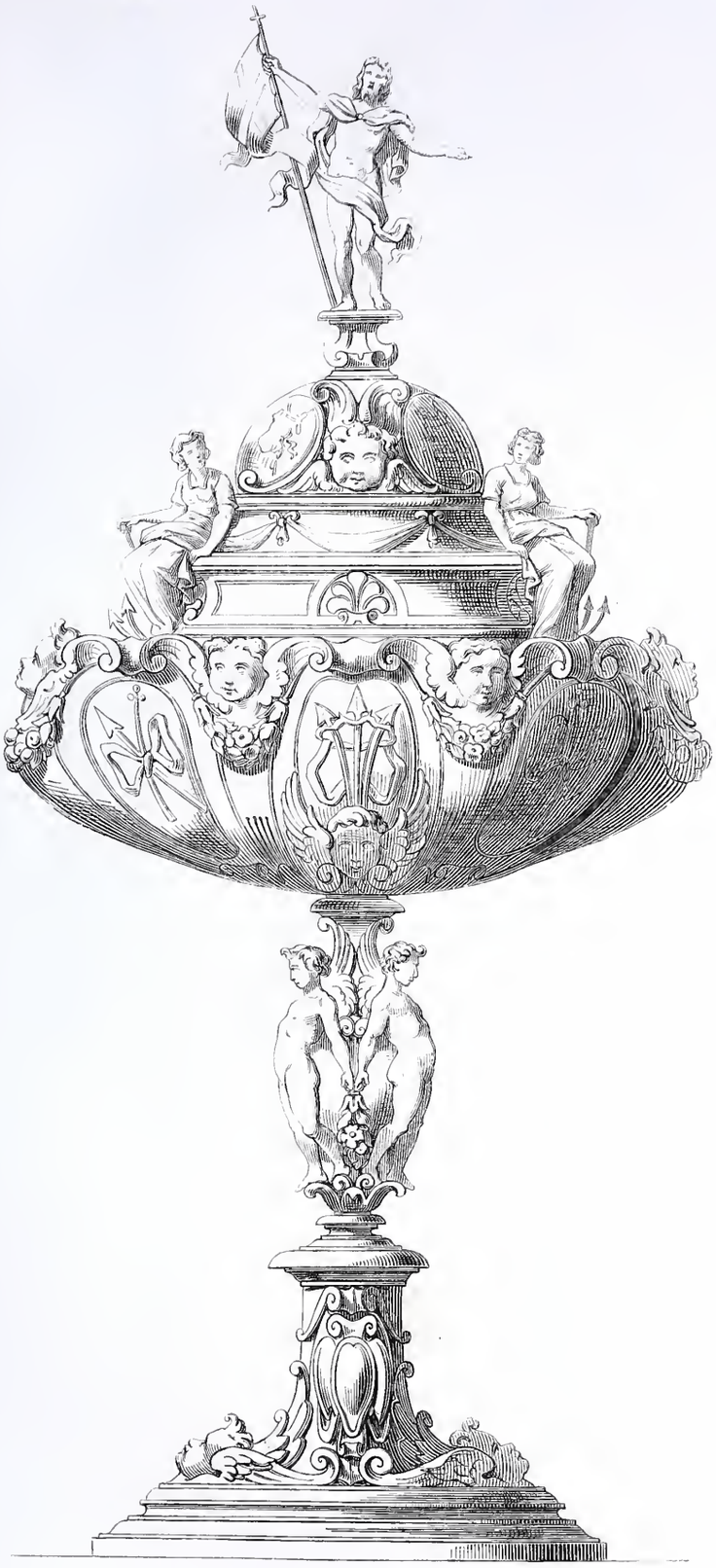
No. 12.

No. 12. Design for Rug; woven in Jacquard loom; the ground crimson with blue stars, the main features of design of borders and centre being in light brown with yellow facings on sky-blue ground.



No. 13.

No. 13. Banner of the United German Choral Societies. Competition design, 1/12 of real size; rich gold embroidery worked on white silk, the upper drapery and frame of centre of crimson velvet, pole and lyre being gilt.

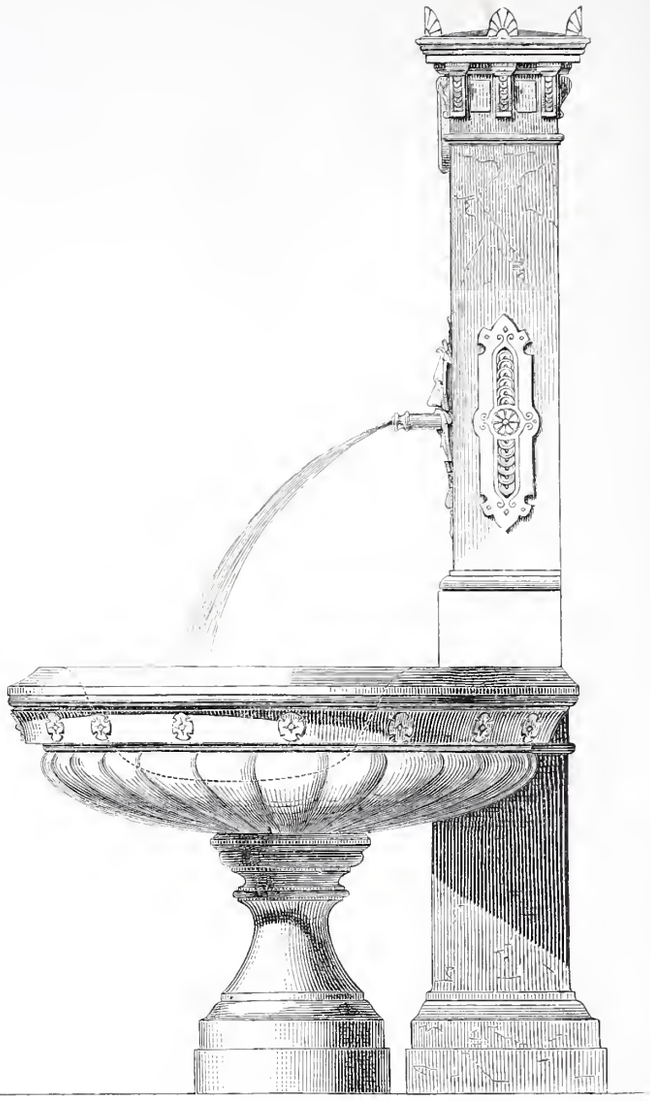


No. 14.

No. 15.

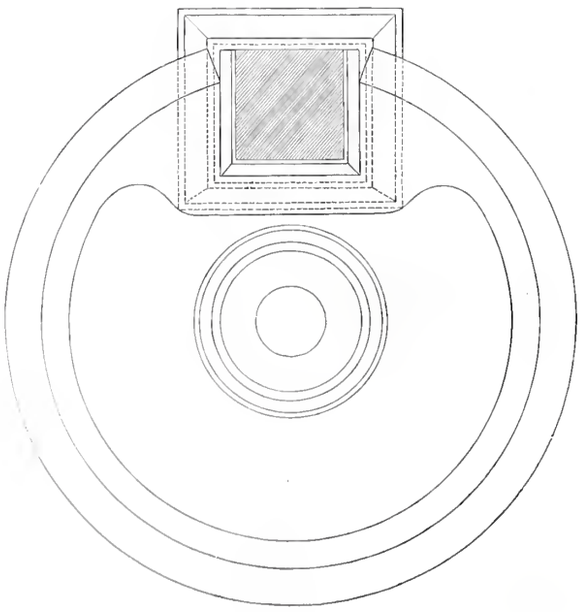
No. 14. Monstrance, or Vessel for the Consecrated Wafer or Host; 1/2 of real size, from a drawing in the Uffizi Gallery, Florence.

No. 15. Paschal Candlestick; of the 17th century, in the Certosa di Pavia.



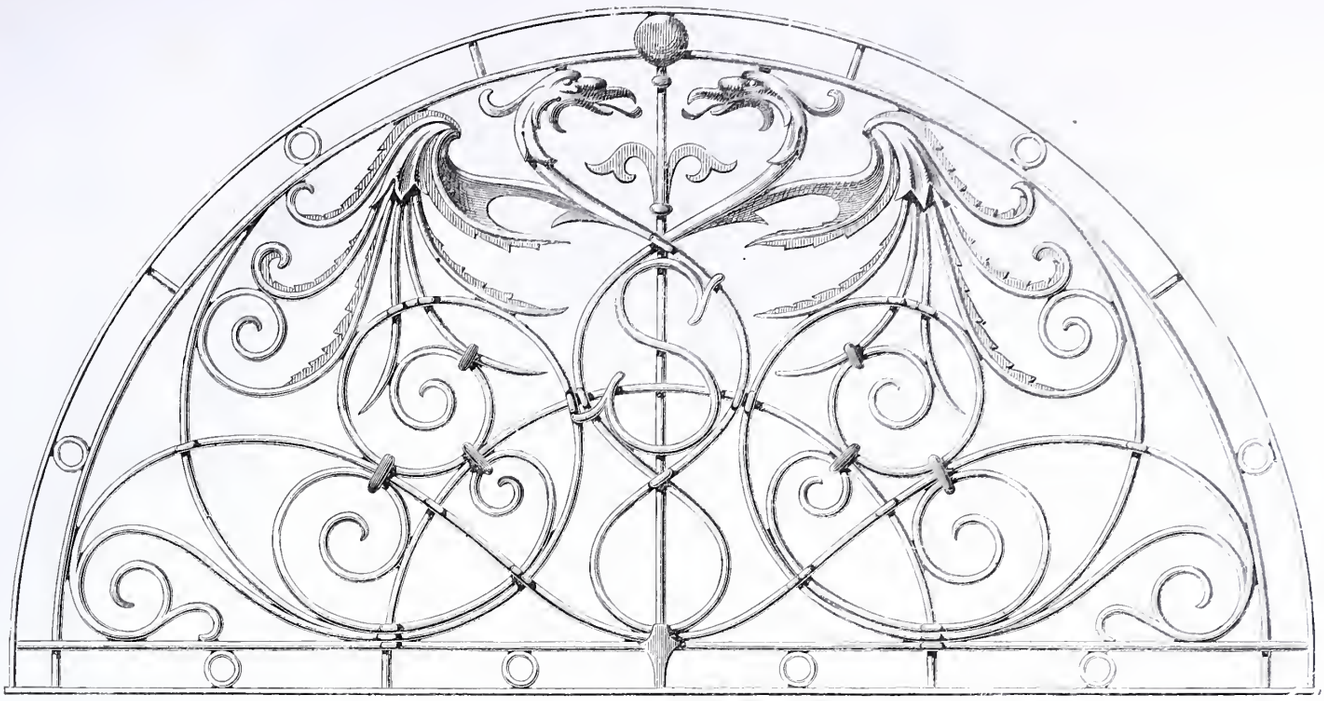
No. 16.

No. 17.

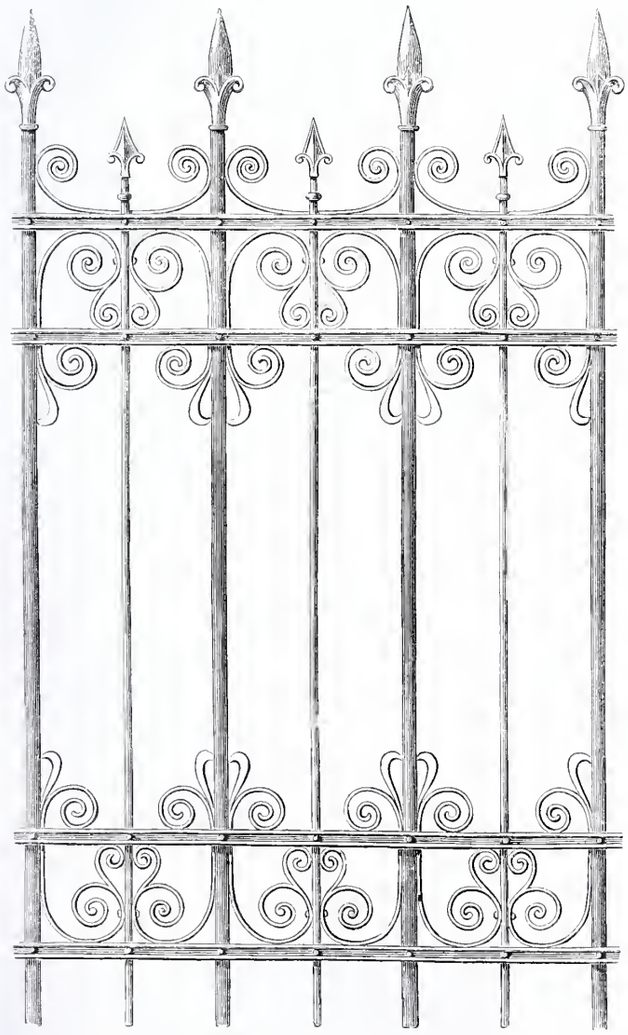


No. 18.

Nos. 16—18. Cast Iron Drinking Fountain; plan, front and side elevation.



No. 19.



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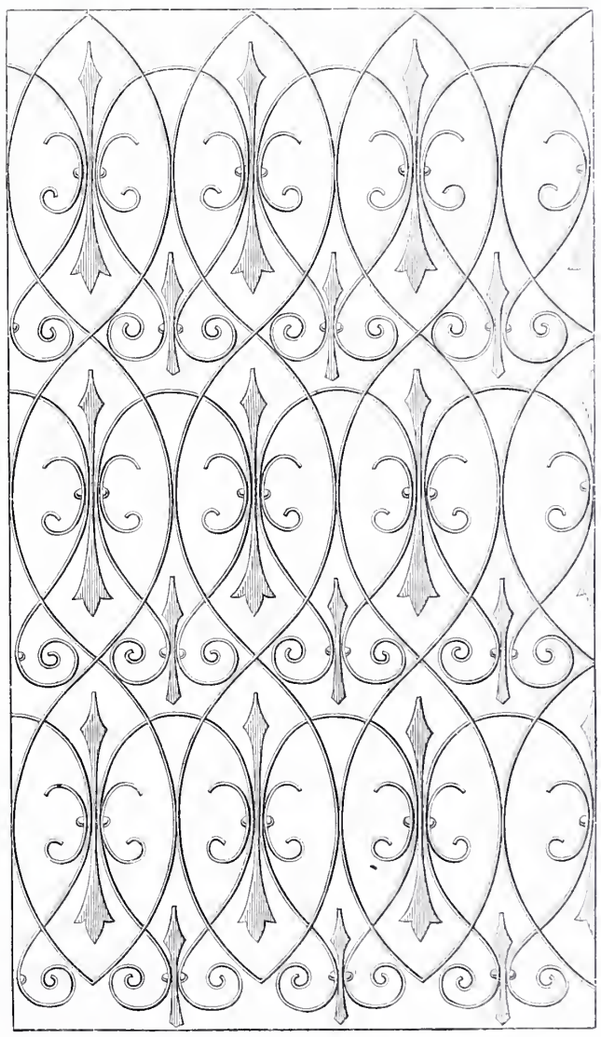
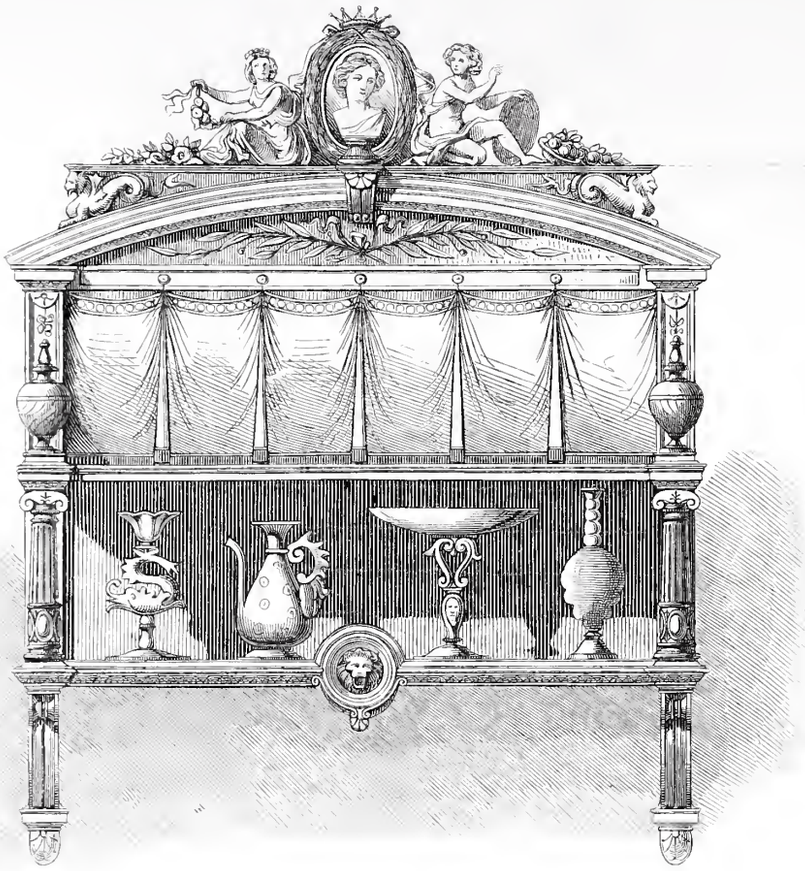


No. 21.

No. 19. Wrought Iron Grille.

No. 20. Wrought Balconet.

No. 21. Wrought Iron Grille; for upper part of a house-door. For details see No. 3 of supplement.



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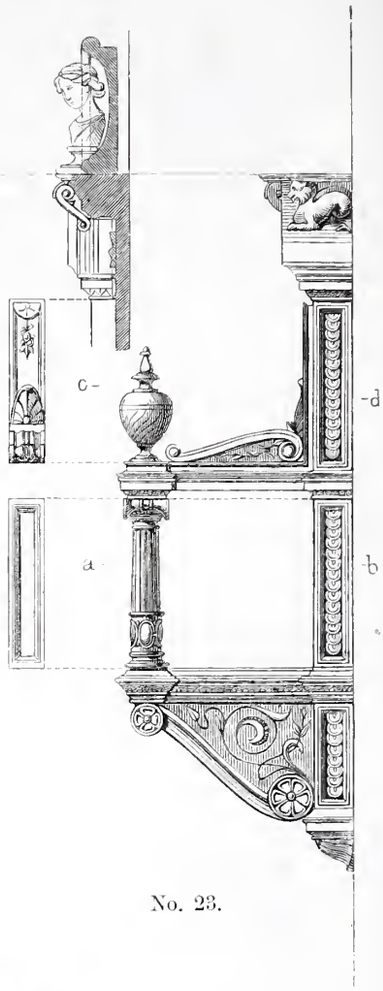

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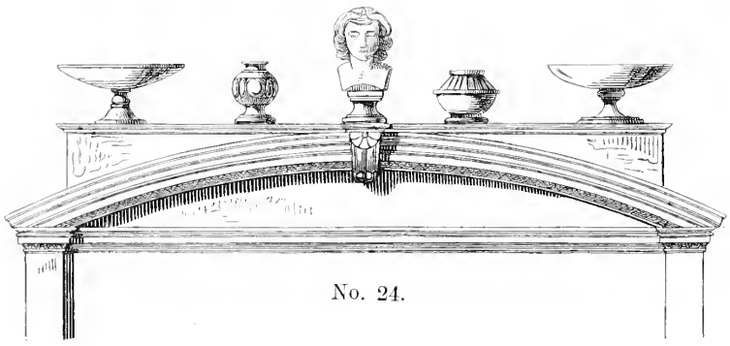
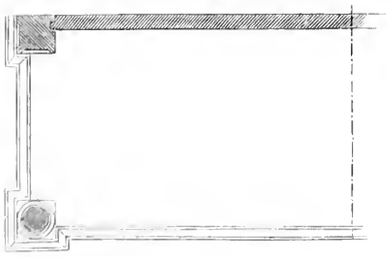


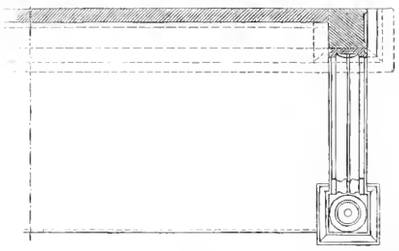
No. 24.

a–b



No. 25.

c–d



No. 26.

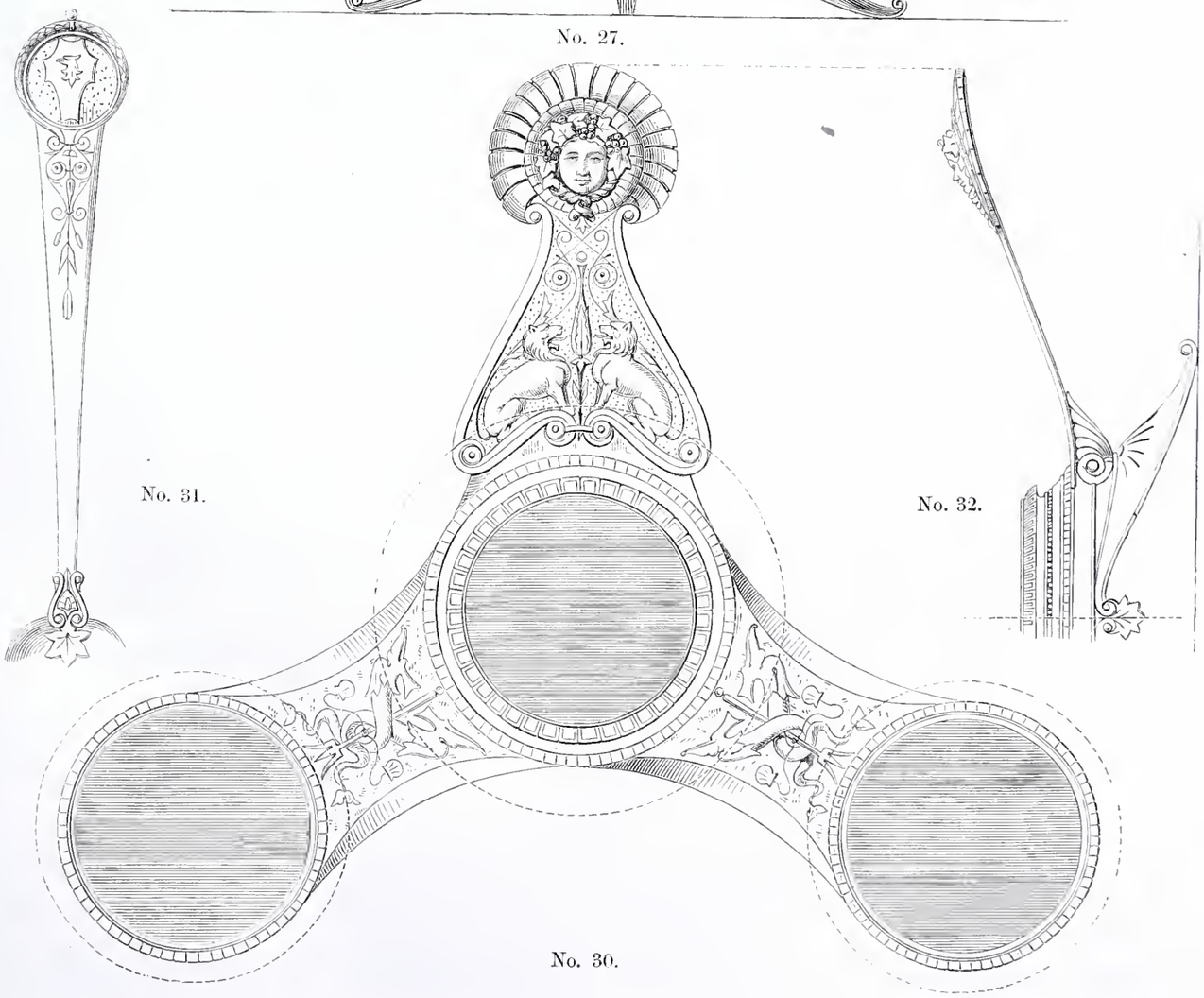
Nos. 22—26. Chiffonier in polished ebony; 1/10 of real size.

The consoles, the little columns, the vases, laurel branches, etc., are rough, the mouldings of the shafts, and back of under division being polished, that of the upper one lined with darkgreen stuff, borders and fringes black. The medallion or bust of upper part, and the little figures right and left are oxydized bronze.

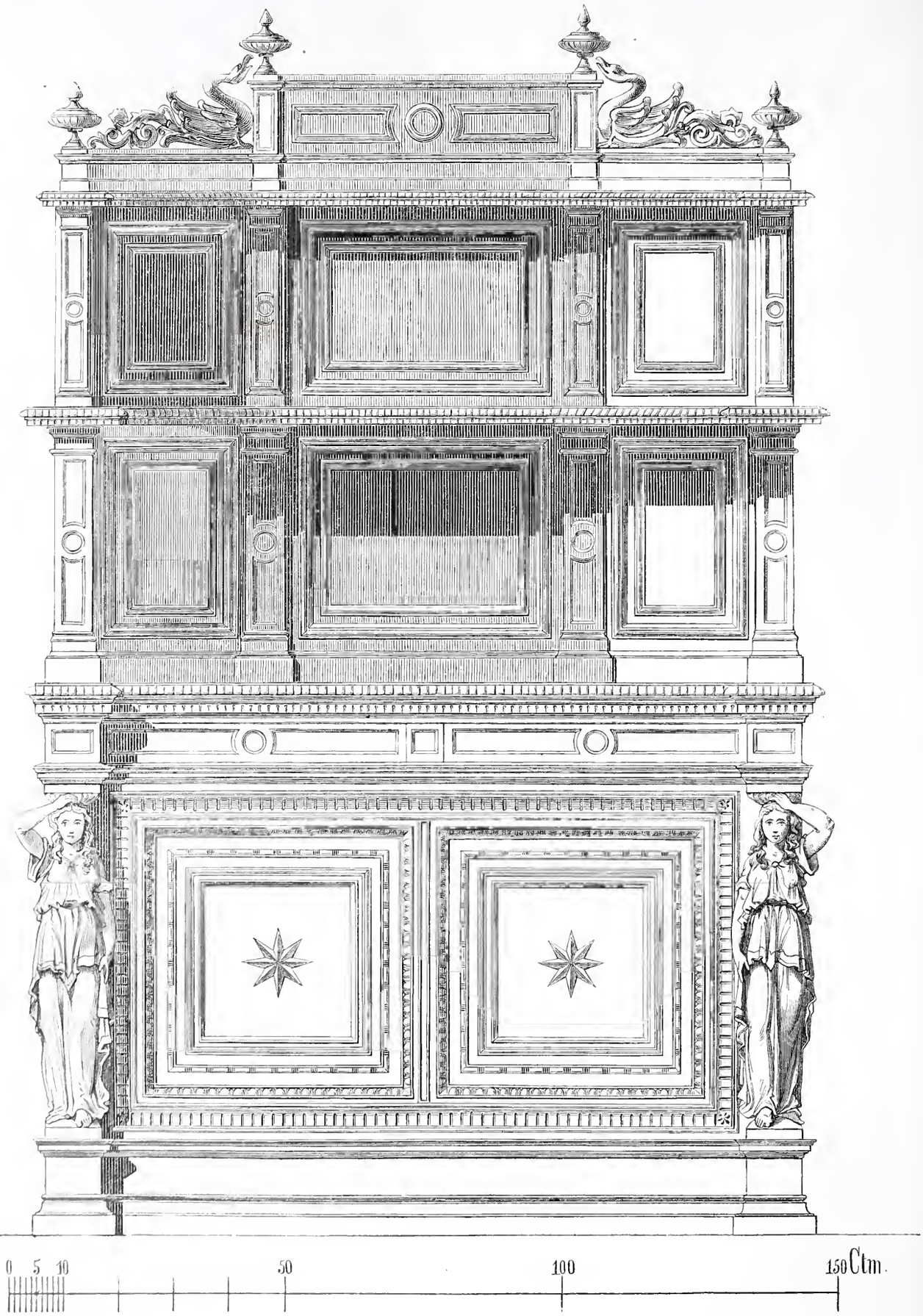
No. 26 illustrates a more simple treatment of the upper part, No. 6 of Supplement giving the necessary full-size drawings for execution.

Nos. 27—32. Silver Stand for mustard, pepper and salt.

The glass for mustard, the pepper and salt cellars are in white crystal, the casing itself of silver, all the ornamental parts, viz., the little sphinxes, foliage, egg and dart mouldings, etc., being dead; the scotias and other plain mouldings of lid and foot of stand as well as the connecting spans and the spoon, with the exception of the handle, highly polished. The linear ornaments are engraved, or in niello.



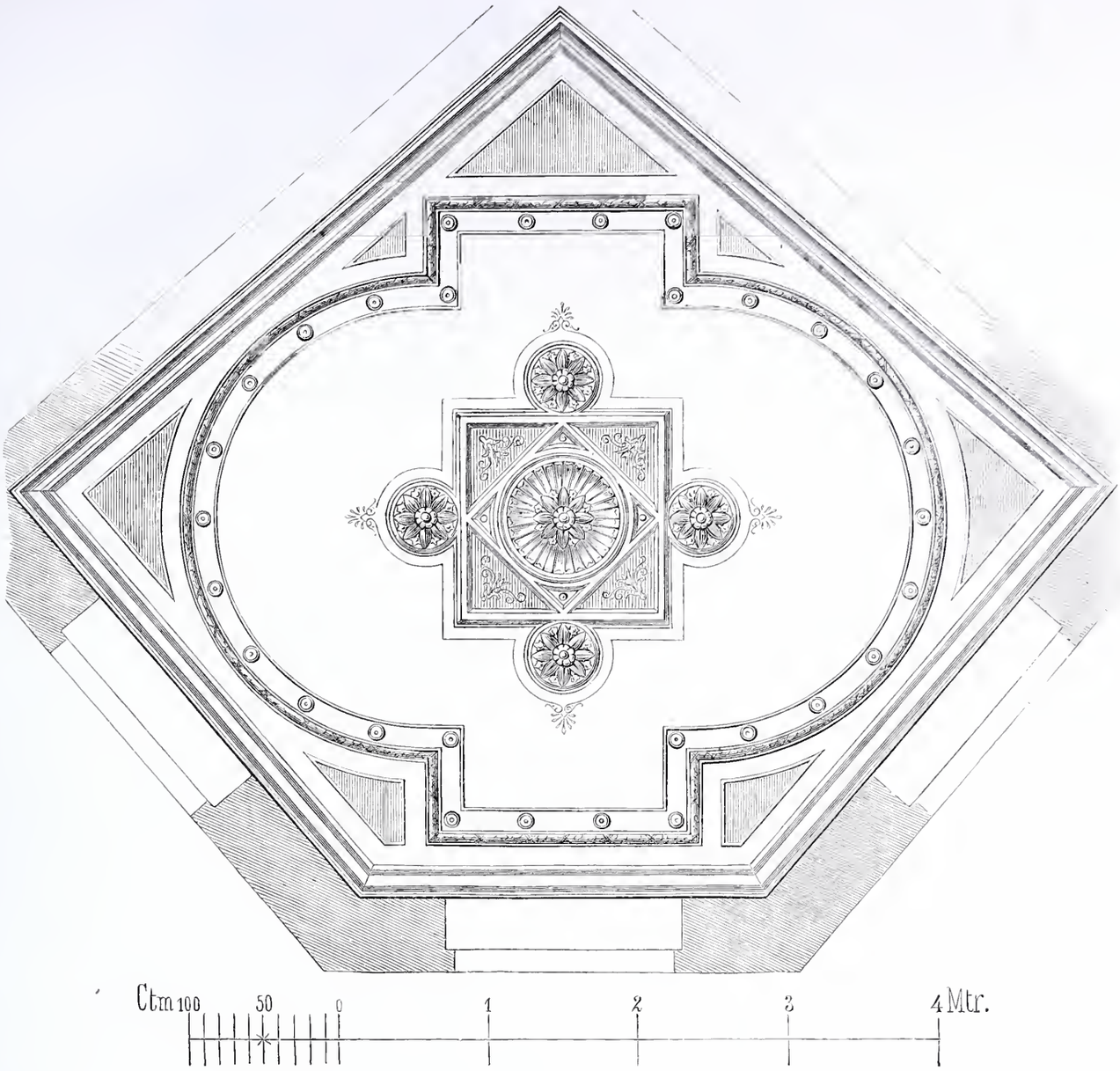
Nos. 27—32. Silver Stand for mustard, pepper and salt (For descriptive notice see p. 76.).



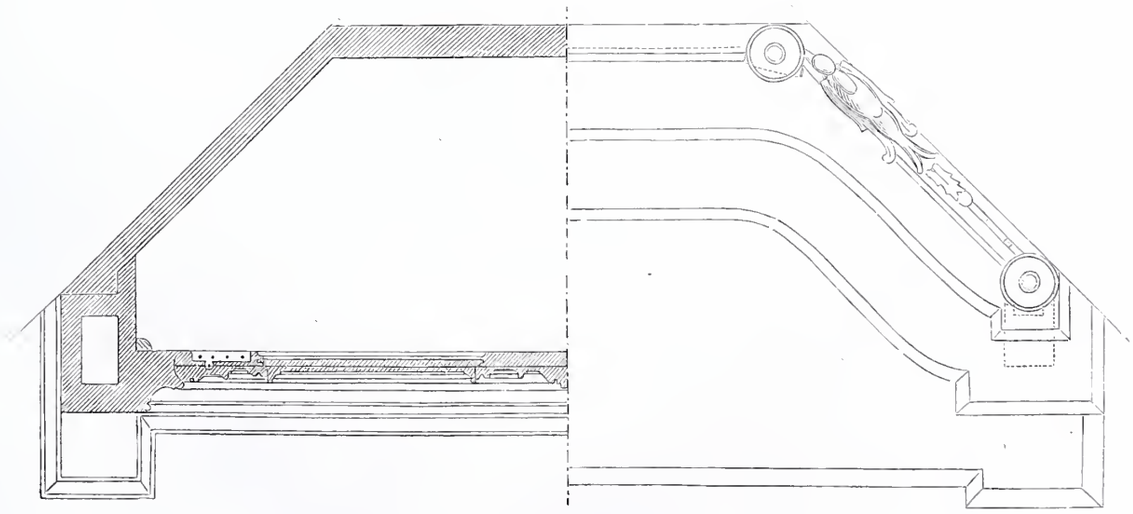
No. 33.

Nos. 33 and 35. Drawing-room Cabinet;

the upper part with shelves for vases, bronzes and other objects of art, supported by pedestals of drawers. This piece of furniture, executed in chesnut, inlaid with dark and light wood, is intended to correspond with a corner chimney-piece.



No. 34.



No. 35.

No. 34. Design of Ceiling in Stucco, for an irregular corner-room; painted in different shades of light brown, relieved by gold. For details see Nos. 1 and 2 of supplement.

NOTICE.

Nos. 4 and 5 of Supplement give details of the Pulpit of the Church of Sta. Croce, Florence, the design of which, with further details and description will appear in Part. 6.

VARIOUS.

Improvement in Artificial Stone, Stucco, Cement, etc.

George A. Frear, of Chicago, Ill., the patentee of this new process, describes, in the *Scientific American*, the nature of his invention, which consists in the use of an aqueous solution of gum-shellac, or its equivalent, in cementing together particles of silex, alumina, calcium, or other mineral substances, to produce, artificially, a hard and durable stone, stucco, cement, or paint, for useful or ornamental purposes.

The shellac solution is best obtained by boiling the gum-shellac of commerce in water previously made alkaline by the addition of any suitable alkaline salt in proper proportion. The proportions of shellac, alkali, and water, may, and necessarily will, vary with the strength and quality of the solution required in producing various descriptions of stones, cements, etc.

In the manufacture of artificial stones for building purposes, the patentee uses a solution, obtained by first dissolving from two to four ounces of saleratus, potash, soda, or other equivalent alkali, in about one gallon of pure boiling water, and then adding thereto one pound of gum-shellac, boiling the mixture until the gum is entirely dissolved.

A firm and durable stone, impervious to moisture, is produced by damping a mixture of about one part of lime or cement and four parts of sand or other silicious material (with or without gravel or other ingredients) with the above aqueous solution of shellac, and then firmly compressing the composition into moulds of any desired form, either by suitable machinery or by hand, with mallets or tamping rods.

The blocks or other articles thus produced will rapidly harden when removed from the moulds, and in a few days will be ready for building purposes. It is preferable to obtain the compression of the material by percussion rather than by simple pressure.

To produce a more perfect finish, the patentee contemplates washing the surface or face of the artificial stone thus manufactured, five or six days after moulding the same, with a weak solution of shellac dissolved in alcohol, ether, or spirits of turpentine (about one pound of shellac in one gallon of spirit).

Instead of using a mixture of lime, or cement, and sand to produce an artificial stone, he also contemplates moistening simple sand, clay, lime, chalk, or other earthy or mineral substances, as well as any combinations thereof, with his aqueous shellac solution, and then moulding the same, by percussion, into suitable blocks or other devices, so that endless variety may be obtained therein at pleasure.

To produce a mastic or stucco, so much of the shellac solution is added to lime, sand, clay, or any earthy or silicious material, or to mixtures thereof, that the material or mixture shall be reduced by the solution to a pasty consistency, which can be readily worked and applied with a trowel. If then applied to any surface, it will firmly adhere thereto, and upon hardening, produce a firm water-proof surface, which may be made to resemble stone so closely as not to be readily distinguished from it. By making the composition still thinner, it may be used as a substitute for paint, and it will also form a strong and adhesive cement for stone-work, etc.

Through a proper choice of the sand or other substances forming the basis of these improved artificial stones, etc., or by the use of coloring matter in connection therewith, nearly all descriptions of natural stone may be imitated, and any colors or shades of material obtained at pleasure.

In applying this improved stucco or mastic to buildings, whether of brick or stone, the surface is first washed with the aqueous shellac solution preparatory to laying on the composition hereinbefore described.

Photography on Porcelain or Glass.

The *Builder* describes the following curious method of transporting photographs on to ceramic surfaces, patented by M. Grune. The usual negative on glass is coated with a fusible glass by the heat of a common cupelling furnace, and the image is thus protected, and positives are got from the negative by collodionising the image side of the negative in a dark room with iodised collodion; and after it is developed it appears in reduced silver. Before the collodionised surface is quite dry, a sharp point of a needle is run all along the borders, and the plate is then immersed in water containing 5 per cent. of glycerine. The film of collodion soon floats on the liquid. The film is taken out when wanted, and its silver surface changed to gold by chloride of gold, or to the appearance of steel by chloride of platinum, after which it is dipped into a solution of metallic salts, which, by the action of fire, will yield certain colors according to the operator's wish. The film is now carefully laid on the porcelain or glass to be adorned; and it sticks by means of diluted glycerine and a soft brush. It is then coated with a vitreous flux, and becomes permanently fixed in the furnace.

Paris News.

The *Académie des inscriptions et belles-lettres* has elected the Count Melchior de Vogüé to supply the place of *académicien libre* vacant in consequence of the decease of the duke de Luynes. M. de Vogüé has acquired a well-earned reputation amongst archæologists and architects by his travels in the East, the results of which he has given in two handsome works, *l'Architecture civile et religieuse en Syrie, du Ier au VIIe siècle;* and *le Temple de Jerusalem;* which he published on his return in collaboration with a well known artist, M. Edmond Duthoit, architect.

By desire of the *ministère des Beaux-Arts,* the French architect employed in the re-erection of the Church of the Holy Sepulchre at Jerusalem is occupied with the execution of a plaster cast of the tomb of Philipp d'Aubigny recently discovered, the reproduction of which is intended to stand in the *Salle des Croisades* at Versailles.

Coaguline.

This is a new transparent cement; it appears the production of operative chemists in Stockport; its adhesiveness and tenacity are said to be extraordinary. Glass, leather, wood, stone, ivory, bone, or minerals can be pieced or joined by it; and so tenacious is it that, when thus used, it will resist a strain of 224 lb. or more. Heat and cold, fire and water, are successfully resisted by it. In piecing glass or crystal with it, its transparency renders the junction imperceptible, and its adhesiveness, in fact, makes the broken glass or crystal as good as new. Its usefulness has led to the introduction of a leather line for window cords, the splice of the cord being jointed by the cement, and thus an endless, smooth, and regular band is produced. Its uses are described as being innumerable. The producers (and discoverers, we presume) of this new cement are said to be Messrs. Kay, Brothers, of Stockport, operative chemists. *The Builder.*

Durable Coat of Paint on Wood.

This paint, impervious to moisture, is produced by dissolving $1\frac{3}{4}$ lb. of colophony with 48 lb. of trainoil and $1\frac{1}{2}$ lb. of sulphur, to which is added so much of burnt ochre as is thought necessary for the requisite shade of color. The paint is applied while hot, and the process repeated a few days afterwards.

The Workshop.

A Monthly Journal, devoted to Progress of the Useful Arts

EDITED BY

PROF. W. BAUMER, I. SCHNORR AND OTHERS.

VOL. I. No. 6.

THE PULPIT IN THE CHURCH OF STA. CROCE IN FLORENCE.

No period of the history of the fine Arts and their development is so interesting; none, in comparatively so short a time, so productive and manifold in its creations, as the beginning of our modern style of art, the early Italian Renaissance. The Antique, treated in the freest manner, and imbued with a romantic charm till then unknown, a most delightful naïveté and congeniality, united with perfection of beauty and form, pervading the whole, produced a style, whose fascinations no true disciple of Art was able to resist; and whose influence, of the highest importance in the advance of civilization since those times, will be of lasting duration.

The magnificent decorative works of Florentine Art, its grand marble sculptures, are what nowadays stand before our eyes as the inheritance of that golden age; and as the result of the high aspirations of the champions of their noble Art, to give a true and tangible expression to the style of the 15th century.

In the days of Brunelleschi, Andrea Sansovino, Benedetto da Majano, no strict and clearly defined separation of Sculpture from Architecture was known; all-powerful in their united resources, they produce works of Art of the truest harmony and unblemished beauty, and which can only be called into life, by the simultaneous and equal proficiency of the most skilful and prominent masters of their respective arts. We have preserved to us an abundance of the most beautiful specimens, works of unsurpassed worth, tending to promote an earnest study, of the greatest importance to modern Architecture, from which the most brilliant results may be expected.

One of the most striking examples of the happiest time of the Renaissance, preserved in a wonderfully perfect state, is the pulpit of Sta. Croce in Florence,* a work of Benedetto da Majano, a Florentine sculptor and architect, (1444—1498) one of the most charming artistic characters of the age in which he lived. The Church of Sta. Croce is justly considered one of the most striking creations of the Florentine Gothic. Begun in the year 1294, we behold a master-piece of Architecture. Octagonal pillars, from which spring lofty pointed arches supporting the open timber work of the roof, divide the imposing interior into three aisles. Leaning against one of the pillars of the south aisle, is the pulpit carved in white marble of Brato, the ground plan of which forms five sides of a regular octagon, at the corners of which six fluted columns are supported by an equal number of consoles. Relievi fill the area of the panels between these columns; the contraction of the main body of the pulpit being effected by means of the consoles, they gradually draw together towards their under part, to find their lowest point of support in a terminating octagonal bracket.

This arrangement of the consoles is not without precedent. The pulpit of Sta. Maria Novella, one of the master-pieces of Maestro Lazzaro, and of somewhat earlier date, shows a similar arrangement which has therefore, not without reason perhaps, been considered the first step to the much grander work of Majano. A similar instance is to be seen in the carved wooden pulpit of Troyes, (1525) whence it may be inferred that these three works of Art, are, as it were, structural embodiments of one and the same idea.

What strikes our eyes most of all in the pulpit of Sta. Croce is the exuberant richness and elegance which the artist displays in the decoration of the panels and consoles. Neither here nor in the capitals of the six columns does the florid imagination of the Master allow the repetition of one single ornament, his inexhaustible genius embellishing them with rich and ever-varying forms of foliage, wreaths of flowers and fruits, and other decorative features. The panels, consoles and frieze under the crowning cornice, as also the escutcheon on the lower extremity of the pulpit, exhibit elegant ornamentation on gold ground which, although no longer in all its pristine splendour, contributes considerably to the harmony of the whole. This profuse introduction of gold is common to many other contemporary monumental structures, carvings in marble and wood, and is a very effective enrichment; this is illustrated for instance by the panelling, pilasters, egg-mouldings and other orna-

* See p. 86, 87.

ments, in the sacristy of Sta. Croce and in the sepulchral monument of Marzuppini, by Desiderio da Settignano, where traces of former decorative painting may still be observed.

The statuary enrichment of the pulpit consists principally in the above named relievi, being representations from the history of the order of the Franciscans to which the Church of Sta. Croce belongs.

The subjects are

1. Pope Honorius confirming the rules of the order of St. Francesco of Assisi.
2. The Saint passing unharmed through the fire before the Sultan.
3. The sacred wounds appearing to him.
4. The death of the Saint, and
5. Martyrdom of five Franciscan monks in Mauritania. *

The relievi, exhibiting almost throughout the happiest compositions, full of beautifully conceived ideas, are real gems of this period of Art; treated in the noblest style, they are of a remarkable delicacy and artistic finish. Rich landscape or architectural backgrounds, although sometimes on the very verge of the picturesque, still strictly within the conventional laws of the relievo, complete these panel decorations. The figures stand out in great boldness, the treatment of details, as well as the arrangement of the whole, reminding us strongly of the best works of Ghiberti. Between the consoles are five niches of red marble; each holding a statuette which, in spite of the small scale, rank, in conception and execution, with the finest creations of that time, the choicest relics of a glorious and flourishing Art. The heavenly virtues, Faith, Hope, Charity, ** Fortitude, and Justice, furnish the subjects of these charming representations.

Altogether this work of Art conveys the impression of the most perfect harmony and repose extending to the smallest details; it fascinates the eye by the exquisite finish of art-workmanship and composition, by the richness of imagination which it displays, and forms a highly successful artistic creation hardly to be surpassed.

The ascent to the pulpit is by a flight of steps, hidden in the pillar, and therefore quite subordinate, and shut by a door highly interesting on account of its exquisite marqueterie, or *intarsia*. This *intarsia*, or decoration of wood panelling with inlays of different colored wood, for the most part representing perspective architectural designs, attained its highest perfection at the time of Benedetto at Florence where it was much practised. The pulpit door of Sta. Croce illustrates a typical specimen of this artistic branch. Semi-circular in its upper part, it is framed by delicate jamb mouldings of white marble, and divided by several stripes into two compartments, the upper one showing the monogram V. H. S. *(in hoc signo vinces)* surrounded by rays, the lower one an escutcheon similar to that on the pulpit, and encircled by beautifully conventionalized rose-ornaments. The whole door is of exquisite elegance and precision of workmanship.

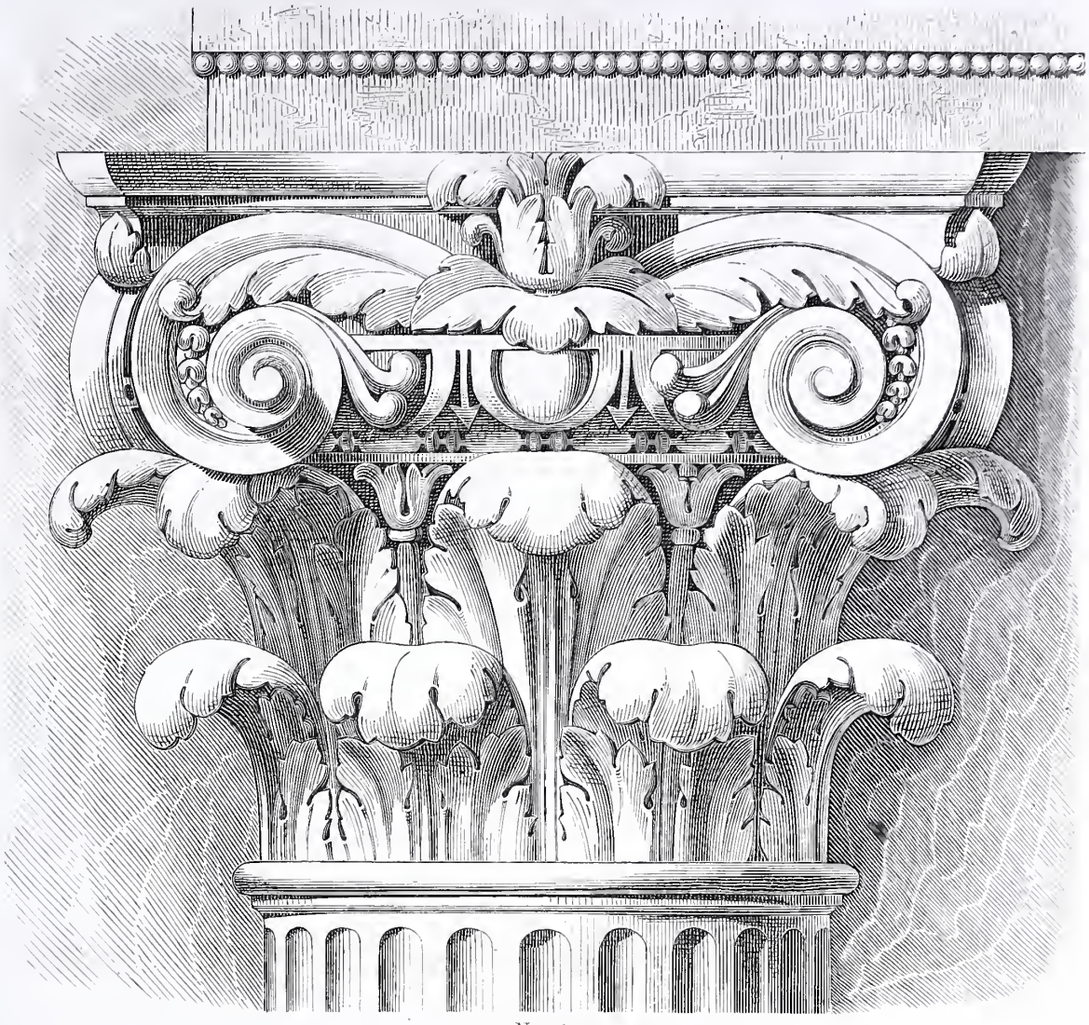
The pulpit was erected under the auspices of the Florentine citizen Pietro Mellini, whose bust, executed by Majano himself, we find in the Uffizi Gallery. Vasari speaks of the great fears which were entertained at the time, on account of the piercing necessary for the introduction of the staircase. By this weakening of the pillar, danger was strongly apprehended for the vaulting which it supports; Mellini however gave security for any eventual damage to the building which might ensue, and Majano strengthened the pillar by cramp-irons in such a way that its solidity was not impaired.

Benedetto di Nardi da Majano, the second son of a stone mason of Majano near Florence, was born 1444. While still a youth he assisted his elder brother Guiliano in his artistic sphere; marqueterie and marble sculpture being the branches he chiefly practised. Vasari gives the highest praise to the perfection our master achieved in these works of Art, and especially mentions a marqueterie chest of remarkable beauty, executed for king Mathias Corvinus by Majano, who brought it himself to Hungary and placed it there. On his return to Florence, he occupied himself with marble sculpture, and to his hand it is that we owe the Porta dei Gigli of the Palazzo Vecchio, and the sepulchral monument of Filippo Strozzi, in the Church of Sta. Maria Novella, showing the most exquisite enrichment in the statuary adornment. Vasari, in enumerating many other of his works, omits one, the tomb of S. Bartolo in San Agostino at S. Gemignano, which on this account we mention here.

Although Majano was less productive in architecture, he attained high perfection in this art in which he may vie with the best of his contempories. For to him we are indebted for the prototype of Florentine Palace architecture, the Palazzo Strozzi; a work marking an era in Art and being a typical illustration of the style of his century, which bears testimony to the superior artistic genius and the extraordinary talent of a man whose influence on early Italian Renaissance was most powerful and vast in extent and importance; an influence such as only highly intellectual and master minds are able to exercise over the tendencies of their time.

* The relievi 1, 2 and 4, are represented in our drawing, p. 87.
** Represented in our drawing.

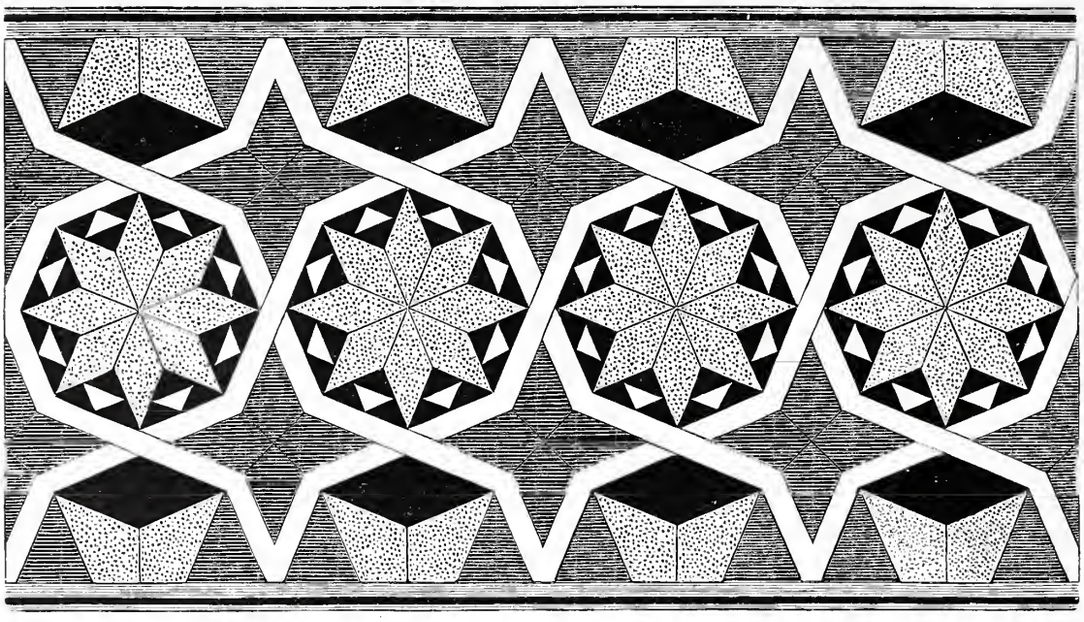
Specimens of Ornamentation.



No. 1.

No. 2.

No. 1. Modern French Renaissance; Capital of the Composite or Roman Order, from the Louvre; Paris.
No. 2. Romanesque Style; Ornamented Tympanum from doorway of St. Michael's Church; Hall (Wurtemberg). Width of doorway 1. 75m. in clear.



No. 3.

No. 4.

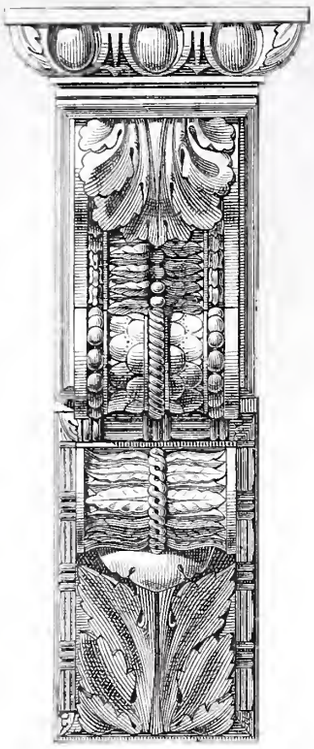
No. 3. Mosaic from Monreale Cathedral, near Palermo (1174—1186).

This example of glass mosaic (see p. 52 *ante*) shows different colors; viz., black and white as indicated in our drawing, the dotted parts being gold, the horizontal shading representing the vermillion ground.

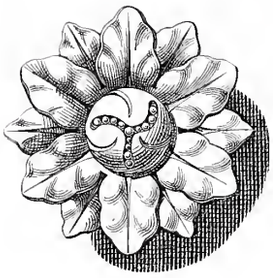
No. 4. Early Gothic; Portion of Cornice from Laon Cathedral; (height of cornice 45 centim.).

No. 5.

No. 5. Modern French; Gilt Cast-iron Ornament, surmounting the curved pediments of main façade of New Opera House; Paris. — M. Ch. Garnier, Architect.



No. 6.



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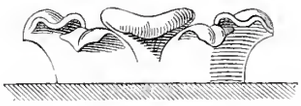

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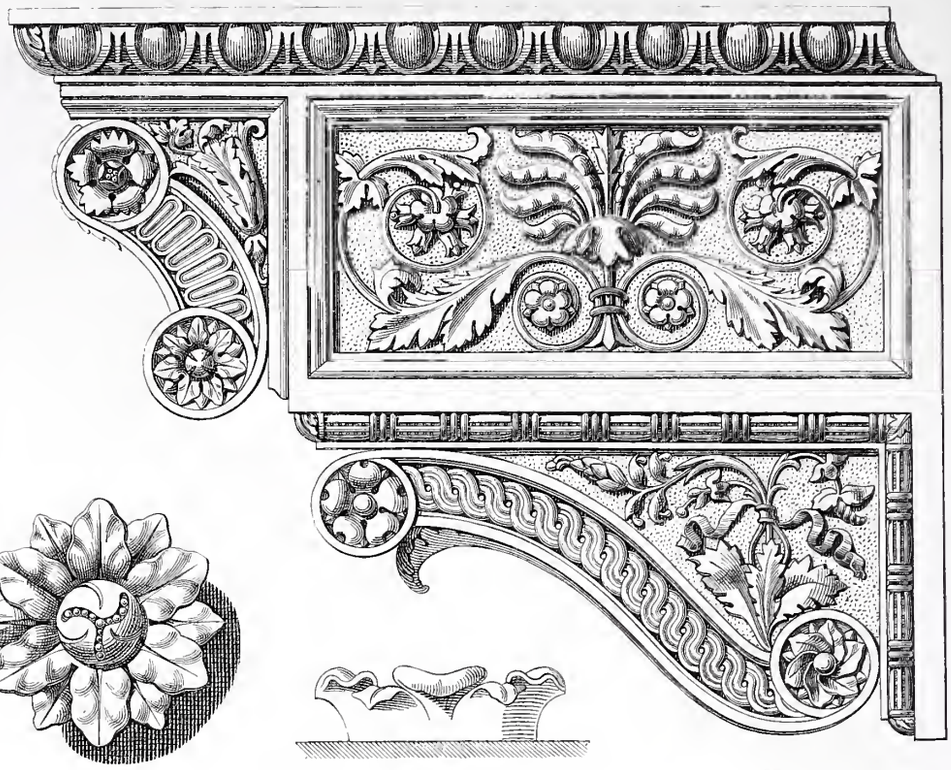
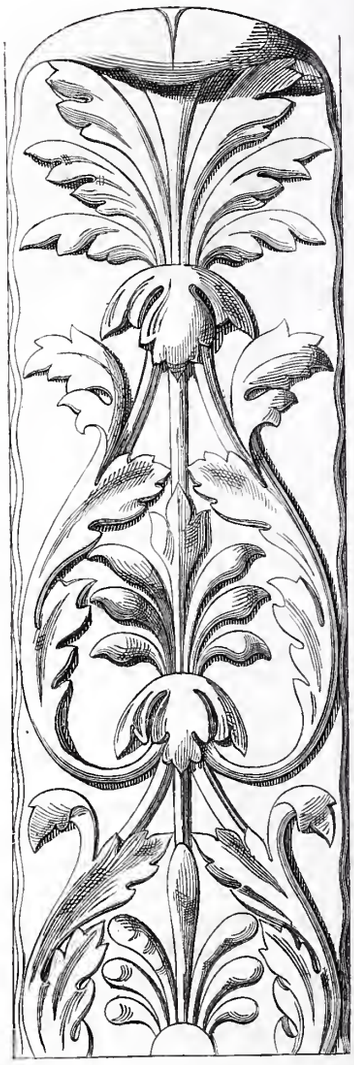


No. 7.

No. 11.

No. 10.

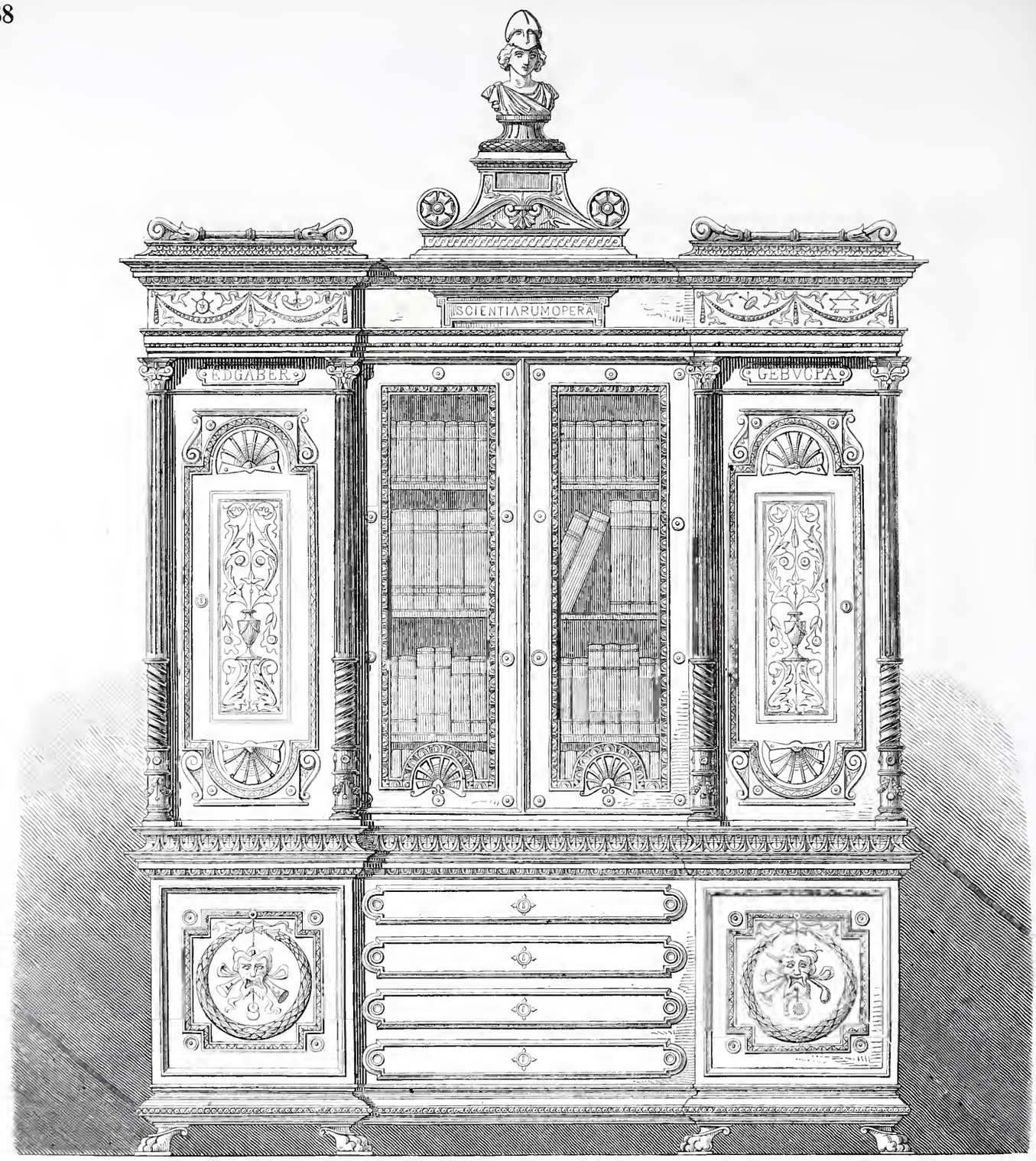


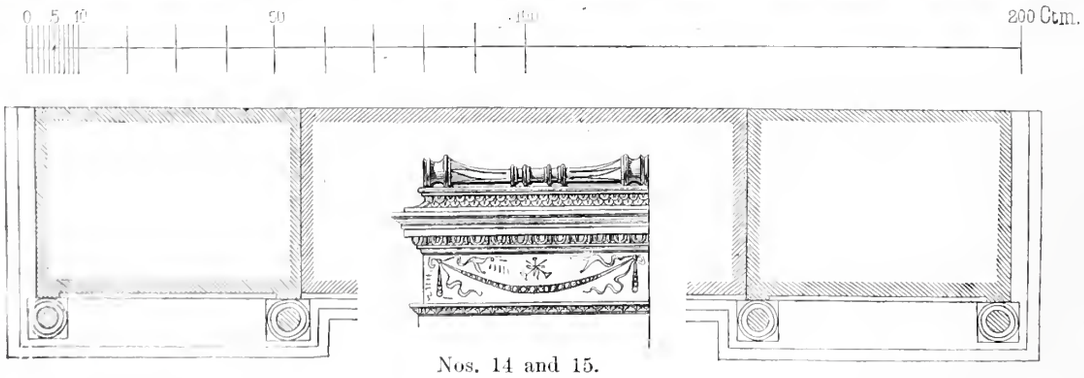
No 12.

Nos. 6—12. Details of Pulpit No. 13; Church of Sta. Croce, Florence.

No. 13.

No. 13. Pulpit of the Church of Sta. Croce, Florence, by Benedetto da Majano. For the description of this beautiful specimen of Italian Renaissance see p. 81; for further details Nos. 4 and 5 of Supplement, Part 5.



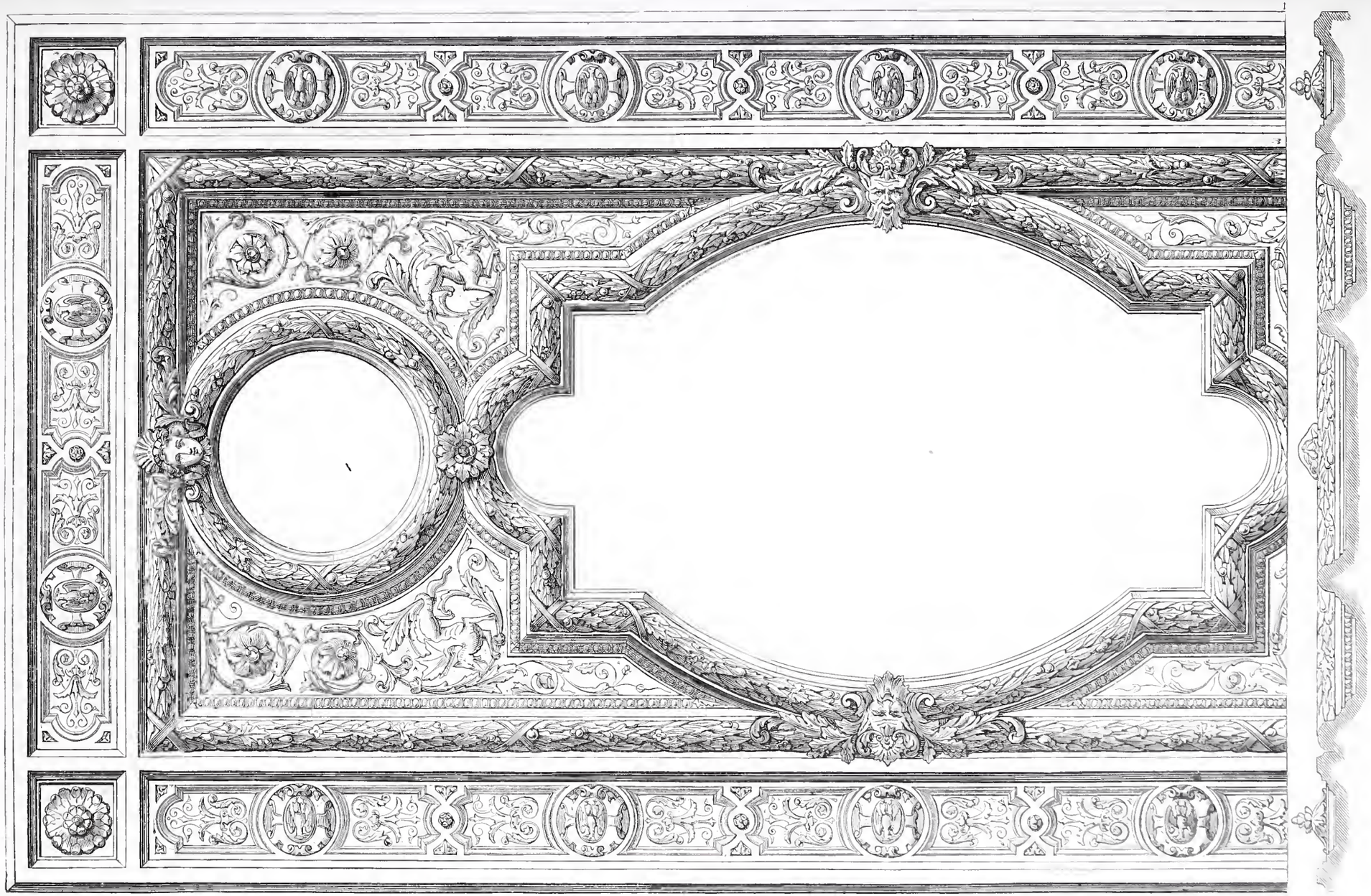


Nos. 14 and 15.

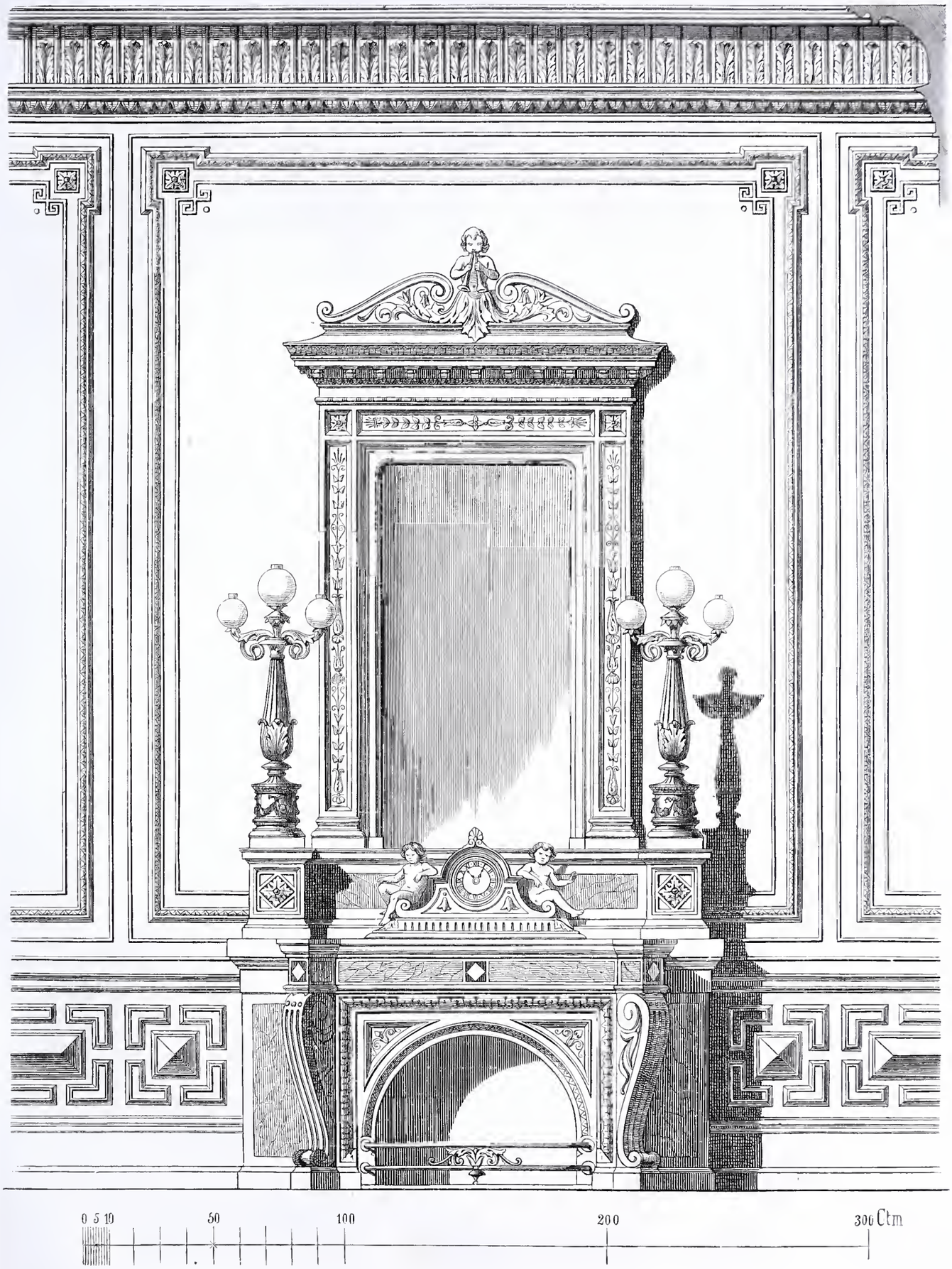
Nos. 14 and 15. Modern Ebony Book-case, with Cabinet. The centre division of upper part fitted with bookshelves, lined with green cloth, and enclosed by double doors, filled in with glass, on each side compartments with panelled doors for instruments, stationery, etc., the lower part with pedestals, enclosed by panelled doors, for music etc., and set of drawers in centre, for drawings, prints and photographs; the mouldings and ornaments throughout richly carved, fillets, flutings of columns, knobs etc., being highly polished. The bronze bust, surmounting the upper part, may be suppressed, if a simplified treatment is preferred; in which case the ornamental panels, mouldings, and other decorative devices are left plain, Nos. 1 and 2 of Supplement giving the necessary full-size drawings.

No. 16. No. 17.

Nos. 16 and 17. Carved Oak Chair, with colored Leather Covering; front and side view. For full-size details see Supplement, Nos. 3—5.



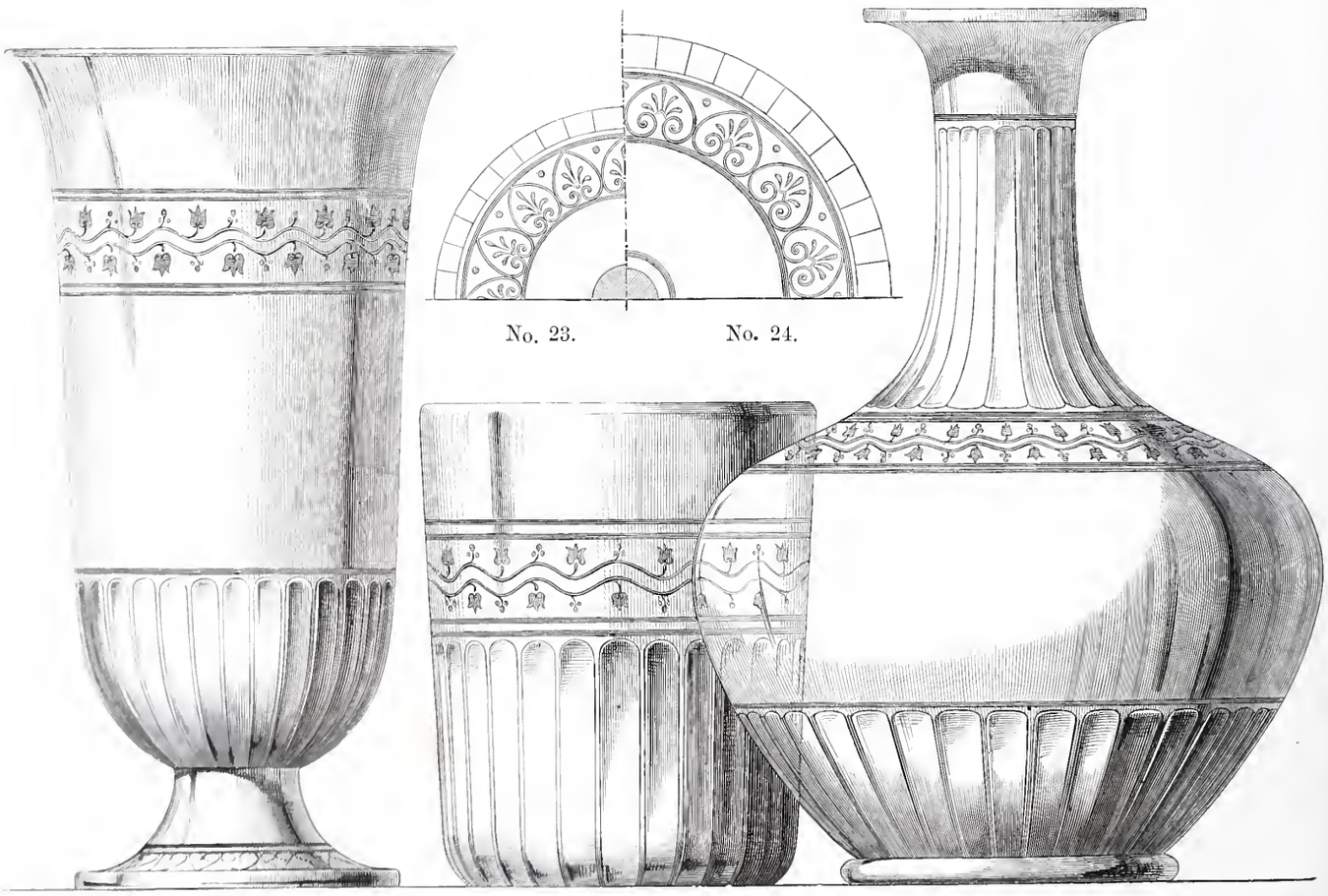
No. 18. Modern Drawing-room Ceiling, with Fresco-Painting in Centre, the decorative coloring chiefly white and gold.
(Competition design.)



No. 19.

No. 19. Marble Chimney-piece; the back of plate glass in a richly moulded frame, with portion of ornamental panels and other drawing-room decoration. For details see Nos. 6 and 7 of Supplement.

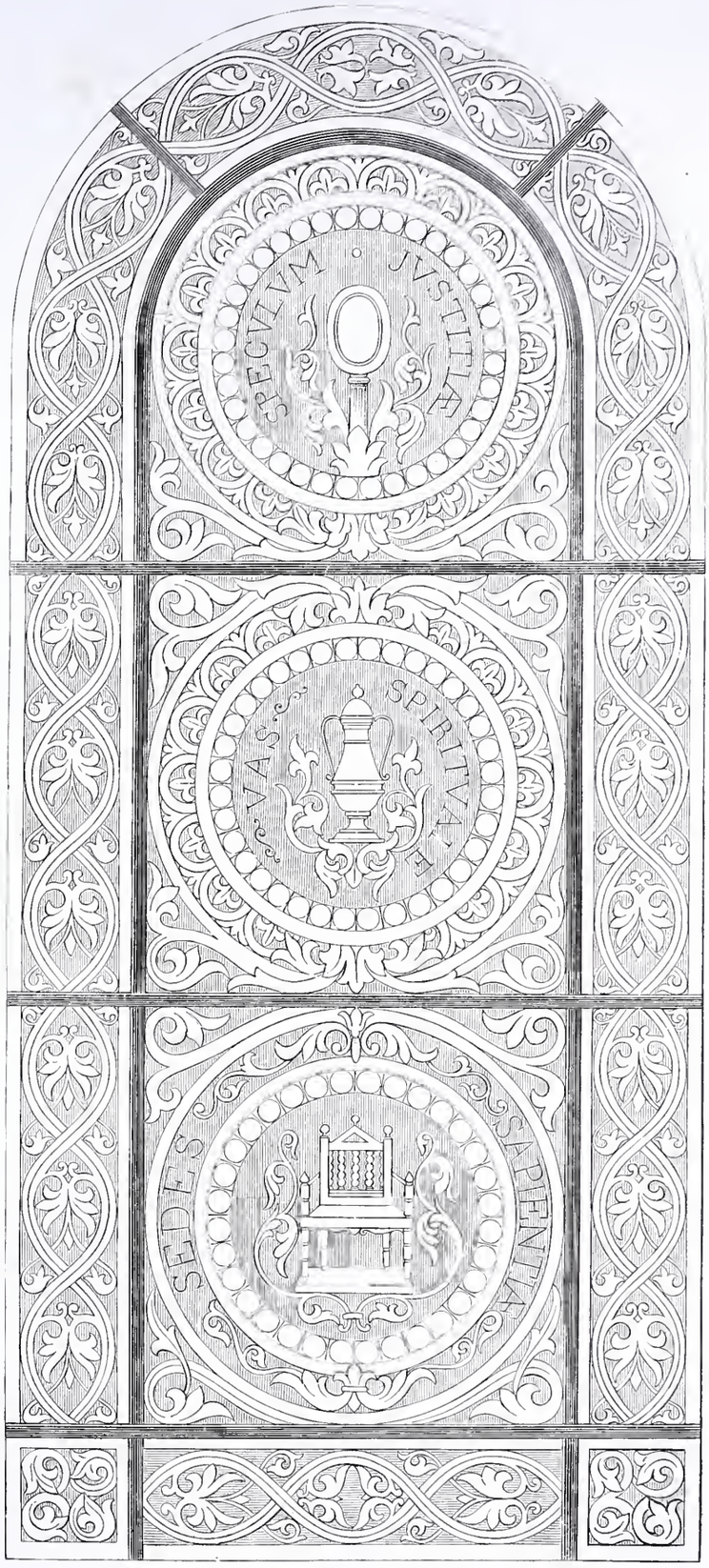
No. 20. No. 22. No. 21.



No. 23. No. 24.

No. 25. No. 27. No. 26.

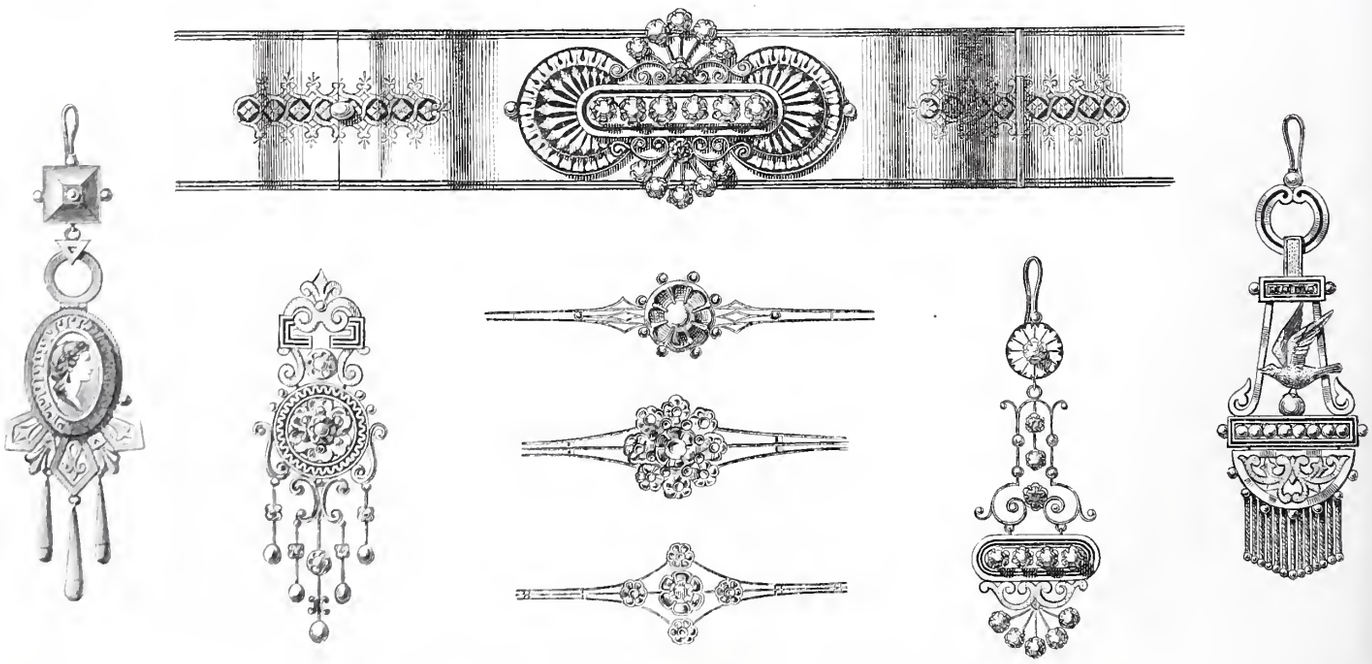
Nos. 20—27. Specimens of Crystal Glass, for table and toilet use; cut, engraved, or gilt with designs in Greek style, comprising: Nos. 20 and 21 tea and sugar vases; No. 22 decanter; Nos. 23 and 24 lids belonging to Nos. 21 and 20. No. 25 beer-glass; Nos. 26 and 27 water carafe and tumbler for toilet use.



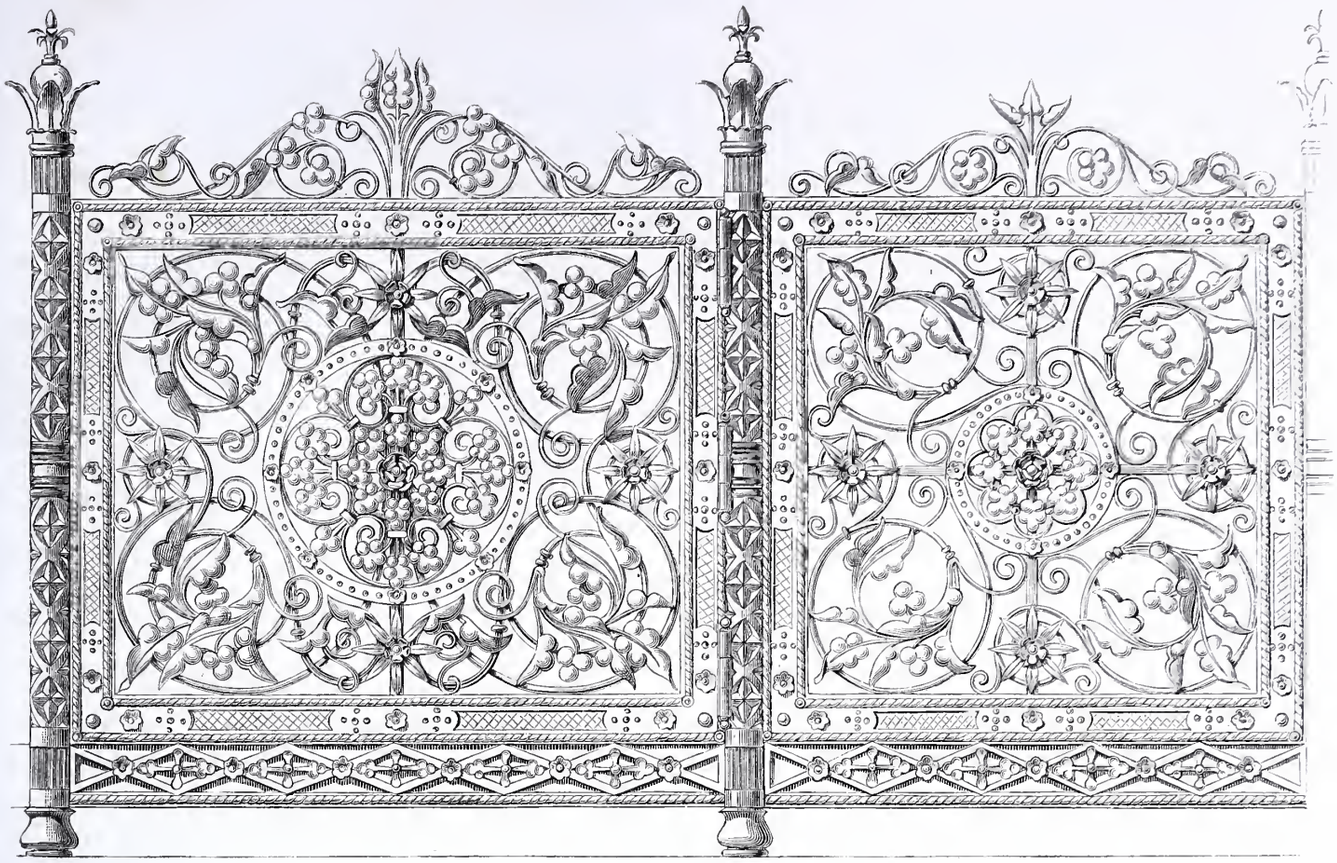
No. 28.

No. 28. Grisaille Window, from the Church of St. Martin d'Ainay, Lyons. M. Questel, Architect, Versailles.

No. 29.



No. 29. Table-Cover; manufactured by Mssrs. Lafon & Dupon, Paris.
The principal colors, used in this pattern, are red and yellow; scale of design 15 centim. to 1m., or 3/20 of real size.



No. 30.

Nos. 31—41.

No. 30. Wrought Iron Enclosure of Tomb, from the Jerusalem Cemetery, Berlin. M. B. Kolscher, Architect.

Nos. 31—41. Specimens of Modern Jewellery; brooches, bracelet, ear-pendants, and rings.

VARIOUS.

Marezzo Marble.

A factitious product, named as above, and intended for interior decoration, has been introduced by Messrs. Cox and Wood, of 483, Oxford Street, London, of which *the Art-Journal* reports as follows: The specimens we have seen bear a polish equal to that of the finest marble, and in color and vein the imitations are perfect. The difference, for instance, between antique and modern Sienna is shown in the manufacture; and on placing a piece of marble by the side of the imitation, the tint is found to be identical; the character of the veining being rendered exactly, insomuch that the difference between the materials can be determined only by examination. A new method of imitating colored stone is at once suggestive of the old resource — scagliola; the application however of «marezzo marble» is much more extensive than that of scagliola. There are, for example certain stones which cannot be imitated in scagliola, but these can be represented in this material. In polish and appearance it is superior to scagliola, and is said to be harder than marble. These are valuable properties, but there are one ore two questions which, although vulgar enough, will affect the popularity of the invention. One is that of price, which is understood to be extremely moderate — that is, considerably under the cost of scagliola. The base of the latter is, we believe, plaster of paris. but that of «marezzo marble» is cement.

The manufacture of the material in the form of slabs is extremely simple. The veining of the stone intended to be represented is carefully copied on a sheet of glass, and of course dried. On this prepared surface is poured the cement, colored to the tint required; and the whole, when dry, is removed from the glass, and polished in the usual way. The markings are embodied with some solidity, for if the surface is chipped they are still apparent in the substance of the material.

The objects formed by the manufacture are chimney-pieces, pilasters, columns, pedestals, consoles, skirtings, mouldings etc., some of which, it will be understood, will require moulds adapted especially to the forms required. The imitations which we have had an opportunity of examining are those of Egyptian green, Irish green, *Vert vert, Jaune fleuri,* and *Griotte* — a very peculiar production, and so highly crystallised that the substance of the stone appears to be seen through glass. The polish that the material bears is, we are assured permanent; it has been subjected to the test of jets of gas, but has not yielded even to this severe trial. The material seems susceptible of any variety of design. When it is considered in the form of pedestals and cornices, we are led to suppose its appearance in other moulded forms, to the diversity of which there is no limit. The slabs can be prepared for facing walls in the same manner as marble is employed; but here again presents itself the question of cost, which we are assured would be less than that of scagliola, with the advantages of superior durability and surface. This opens at once a wide field for the application of the material to the ornamentation of public buildings and private dwellings. Being producible in all colors and tints, it might be made to harmonise with any draperies, either as panels, or as the bordering of panels, to be filled with designs, figures, or flowers in flat color. Being a very recent invention, it is scarcely yet known sufficiently to have been much used. The papers now employed for covering the walls of rooms would, in their variety and elegance of design, seem to leave nothing to be desired; but they cannot be employed for public buildings, and it is to these that the manufacture will perhaps be first applied. The entrance to the house of the Society of Arts in the Adelphi has been recently decorated on this principle, and there a more perfect judgment of its effect can be formed than from seeing it in fragments, although never was marble imitated with such delicacy of color and perfection of marking as are presented in these specimens. Under any circumstances, this ornamental product cannot but prove of value.

Lamp Chimneys.

Every person who has had any experience with lamp chimneys is aware of the seemingly singular want of uniformity in the length of time they will stand use. Some will last for months, while others, apparently sound and good, will break after a short use, without any apparent cause. The great cause of their being brittle and breaking so easily lies in the material they are made from. There is «shoddy» in glass as well as in cloth. Cheapness being the order of the day, a great many manufacturers make chimneys from silicate of lime instead of silicate of lead. The glass made from the silicate of lime has about the following proportions: Sand, 100; soda, 45; lime, 20 to 25; nitre, 7 to 10. Lime being a non-conductor of heat, the chimney will not bear the expansion caused by the heat; and, if by gradual heating, the chimney does not break on the lamp, a few times heating makes it so brittle that it breaks with the least effort at cleaning it, no matter how much care is used. The silicate of lead has about the following proportions: Sand, 100; lead, 40 to 50; soda, 20 to 25; nitre, 10 to 15; lead being very ductile and a good conductor of heat, a chimney made from this formula will almost melt before it will crack with the heat. The uninitiated may tell the difference of the chimneys made of these different qualities of glass by ringing them; the fibration from the lead-glass chimney, has a sweet, bell-like sound, whilst the lime glass has a short harsh sound. The difference of the cost of manufacture is only, in material, about 8 d. per dozen. Another point is in annealing; chimneys, as a general rule, are not annealed. Under a powerful microscope the difference can be seen in the glass; the particles in the annealed glass lie close and compact, while the unannealed seem ready to diverge. *"American Inventor."*

Varnish for Ironwork.

Dr. Lange describes in *Dingler's Journal* a method of producing an excellent black varnish for ironwork. He distils gas tar until nearly all the volatile products are got rid of. He then stops the distillation, and dissolves the residual pitch either in the havier oils, or, if a very quickly drying varnish is required, in the light oils or naphtha. This varnish is, of course, the original tar minus the ammonia, water, carbolic acid, and other things which give it its disagreeable odour, and make it so long in drying.

Strong and durable metallic Cement.

A very strong and durable metallic cement is formed when a mixture of equal parts of oxide of zink, sulphate of lead, peroxide of manganese, and oxide of iron is made into a paste of proper consistence with boiled linseed oil.

Brass pickle.

According to Dr. Hiller the brownish red color often obtained when brass work is pickled on the usual mixture of acids, may be avoided by making use of a mixture of equal parts of commercial nitric and sulphuric acids. Articles dipped in this mixture and then well rinsed in cold water have a very beautiful dead yellow color. *The Mechanics' Magazine.*

Preservative against Rust for Iron and Steel.

A very effective means of preserving the iron of commerce from rust is said to be obtained by a slightly heated solution of white wax in oil of turpentine in equal weights. The metal is brushed over with the mixture, and then rubbed and somewhat polished with a piece of dry linen.

The Workshop

A Monthly Journal, devoted to Progress of the Useful Arts

EDITED BY

PROF. W. BAUMER, I. SCHNORR AND OTHERS.

VOL. I. No. 7.

THE HANDLE IN ANTIQUE VESSELS.

The Art of Pottery may certainly be considered to surpass, in point of abstract beauty, all the other branches of Ornamental Art of the great Græco-Roman period. Structural embodiments of a greatly refined, artistic taste, these works of art, which combine truth and fitness with the most perfect beauty and delicacy of form, enhanced by an exquisite ornamentation of surface and outline, are real gems, standing far above most of our manufactured productions of recent date in this branch of ornamental art.

Devoid of any timidity of treatment, every line of these charming works of art is marked by that freedom and congeniality of invention, characterising the creations of a truly artistic genius, which, neither impaired nor checked by individual encroachments, is justly appreciated and supported by a highly cultivated people imbued with an intrinsic love, and sound understanding of the beautiful in Art.

In studying the structure of antique vessels, we find great care and skill bestowed on the treatment of the handle which is either simple and »handy«, with but a scanty use of decorative features, when applied to the more common vessels for daily use; or truly rich with its charming ornamentation, showing a profusion of graceful motives, when it has to embellish the sacrificial vessels, urns, and vases. In these we see sometimes entwined snakes, sometimes twisted ropes and branches arranged as handles, or little figures serving as the means for a convenient and firm grasp of the vessel. But the structural form of the handle, notwithstanding the exuberance of fancy displayed in its decoration, is always subservient to its purpose, and nowhere do we find, through mere caprice or fancy, any departure from that common-sense principle, truth and fitness, which cannot be inculcated too strongly on our modern art of pottery.

The handle, originally not in use — for the earlier, more primitive vessels shew no trace of any — is not, in fact, an organic, integral part of the vessel, but rather an appendage, and its decorative treatment in perfect harmony with its characteristic nature. The ends of the handle, in order to mark the points of contact, and perhaps also to screen the otherwise rather unsatisfactory arrangement, are generally enriched by masks, honeysuckle or other decoration. Its being merely affixed to the body of the vase is more strikingly expressed with the horizontal, than with the vertical handle, the latter affording a better and more intimate connection with the brim of the vessel.

The necessity of carrying about vessels of large dimensions filled with liquids may have been the occasion for providing them with handles, and most likely only rope-ends and branches were first used for this purpose, before proceeding to make them of the same material as the vessel. This may be assumed from the ornamental structure of the handle, and is further corroborated by specimens of later date, different materials being used then for body and handle; while the other style of manufacturing them both of the same substance was, no doubt, derived from vessels of metal, a material particularly suggestive of such a process.

Not much later, by another step in advance, appears the marble vessel, the rendering of decorative features, mouldings, and main-outlines, displaying, as is the case in most ornamental marble-works, the influence of the metal prototype, on which they are obviously based.

Finally also the handle structure of earthen-vessels shows direct traces, or at least reminiscences of the metal style, noticeable in all but the later examples. Here the honeysuckle or mask in bold relief has to give way to its painted substitute, the transition between

handle and bowl of the vase being effected by continuous, rounded off lines, such as might result from modelling the soft clay with the fingers.

Beautiful specimens of handles from metal vessels are represented in Figs. 1, 2, 3, 4, 5 & 6. The handle rising in gracefully curved lines, affording a convenient and firm hold, shows, in Fig. 1, deeply incised ornaments, in Fig. 2, hollow mouldings or channels of bold design.

Of very elegant and playful conception, the handle in Fig. 3 is represented by a nude little figure, peeping with curiosity into the fluid contents; in Fig. 4 suggestively adorned by a Chimera, jealously guarding the precious liquor. In juxtaposition to this, we give, in Fig. 5, a specimen of the most perfect beauty and finish of form.

A good example of a horizontal handle, which, being affixed at both ends to the bulbed part of the vessel, demands a symmetrical arrangement, is illustrated in Fig. 6.

Figs. 7 & 8 show handles of earthen-vessels, Fig. 7 exhibiting still the characteristic features of their metal origin, while in Fig. 8, more attention is paid to the nature of the material.

Fig. 9 represents a marble handle, obviously suggested by metal specimens.

All from original drawings, Figs. 1—8 are from vessels in the Museo nationale at Naples, Fig. 9 being in the Vatican collection at Rome.

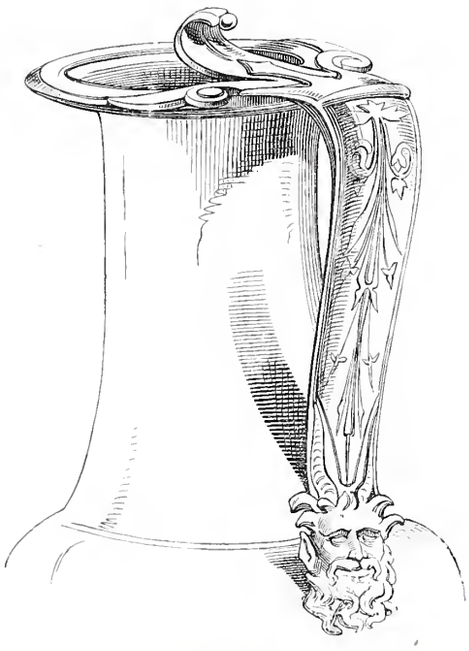


Fig. 1.

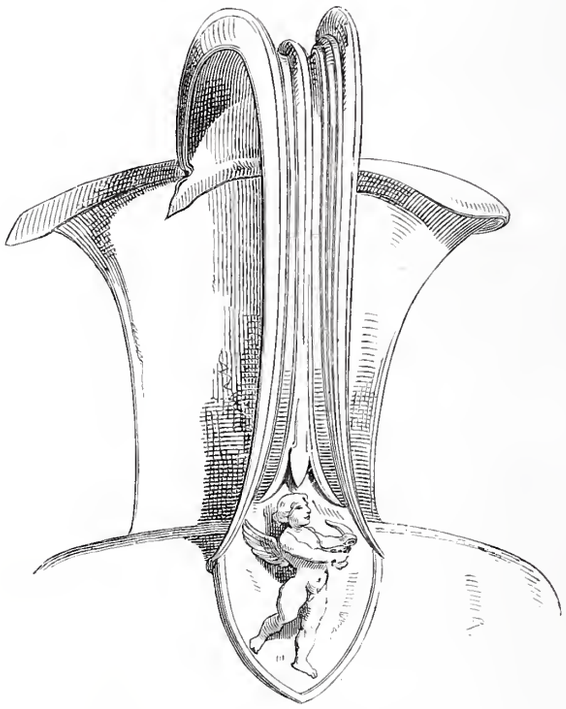


Fig. 2.

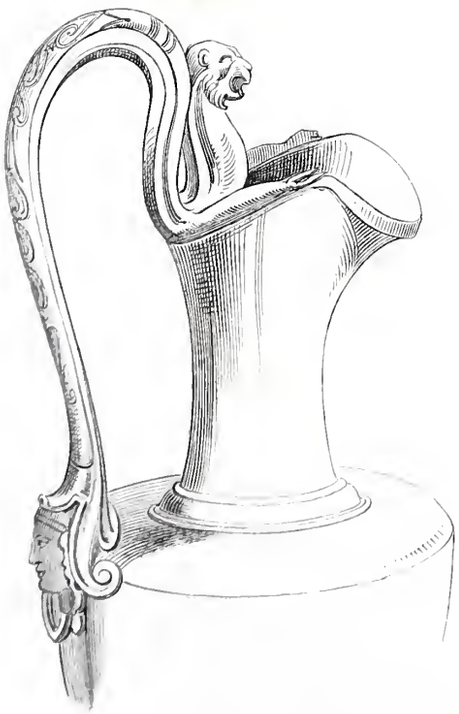


Fig. 4.

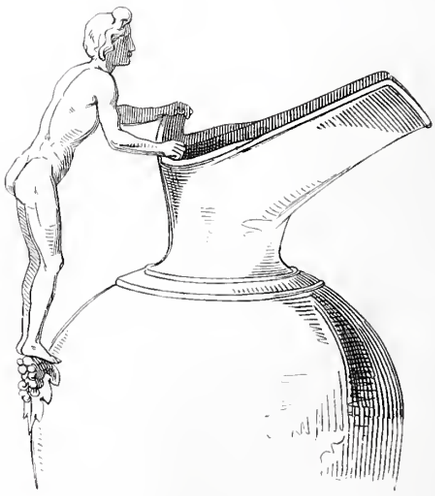


Fig. 3.

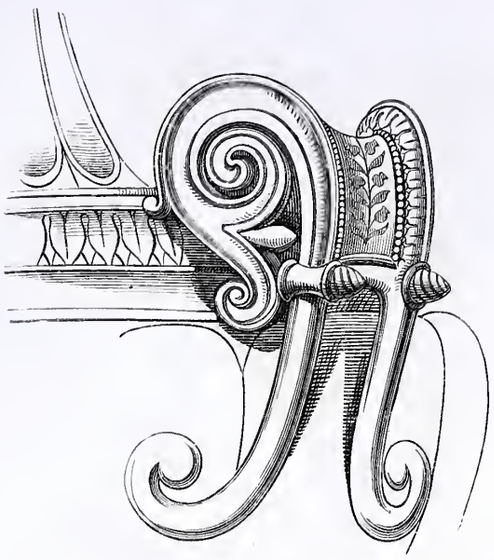


Fig. 5.

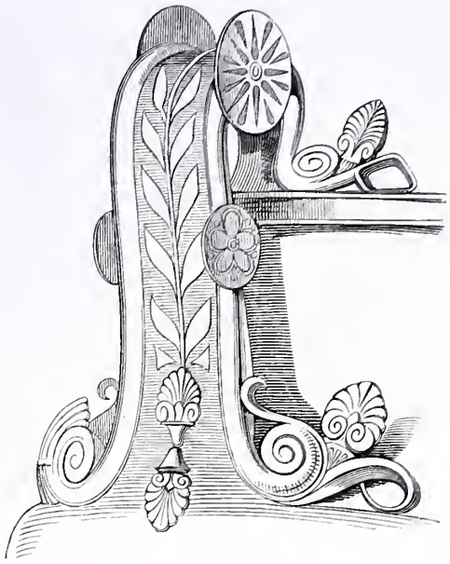


Fig. 7.

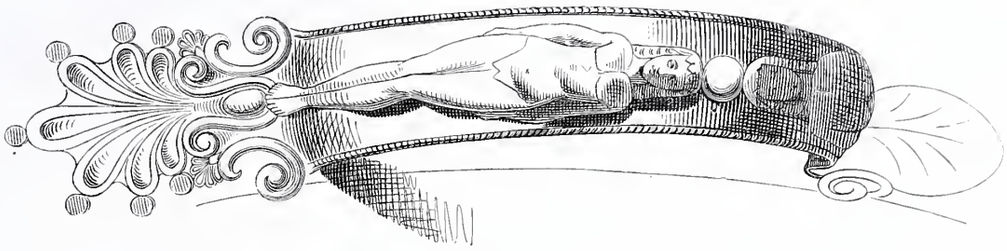


Fig. 6.

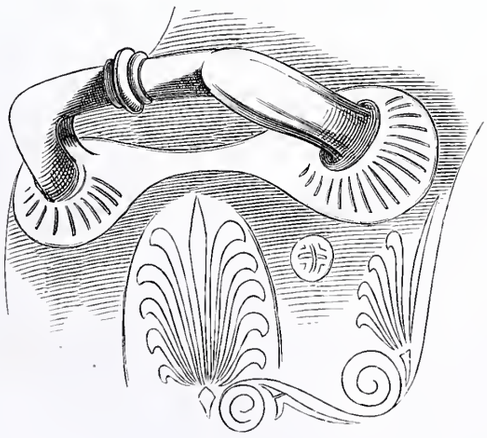


Fig. 8.

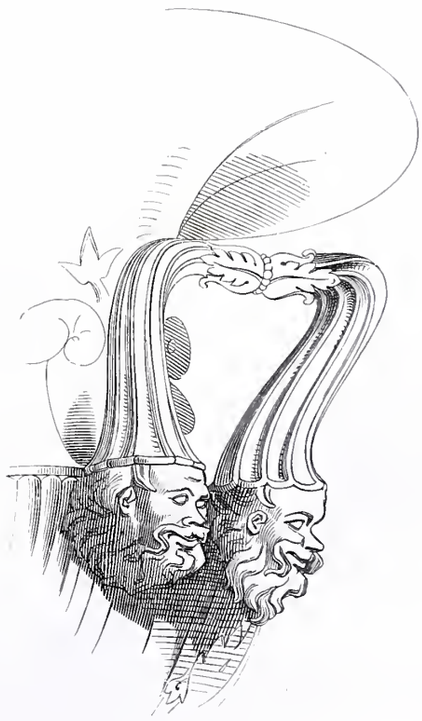
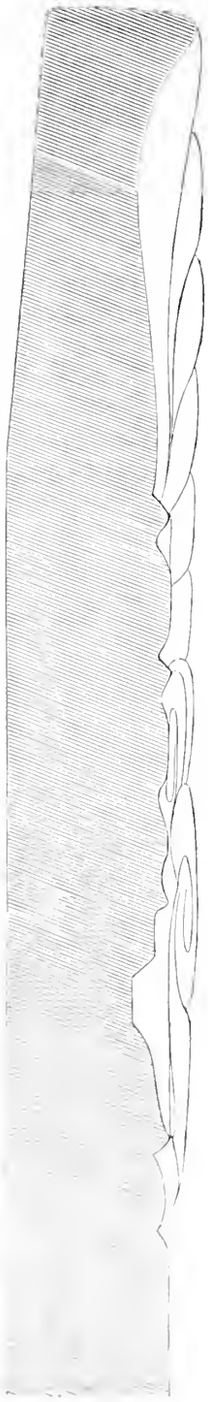


Fig. 9.

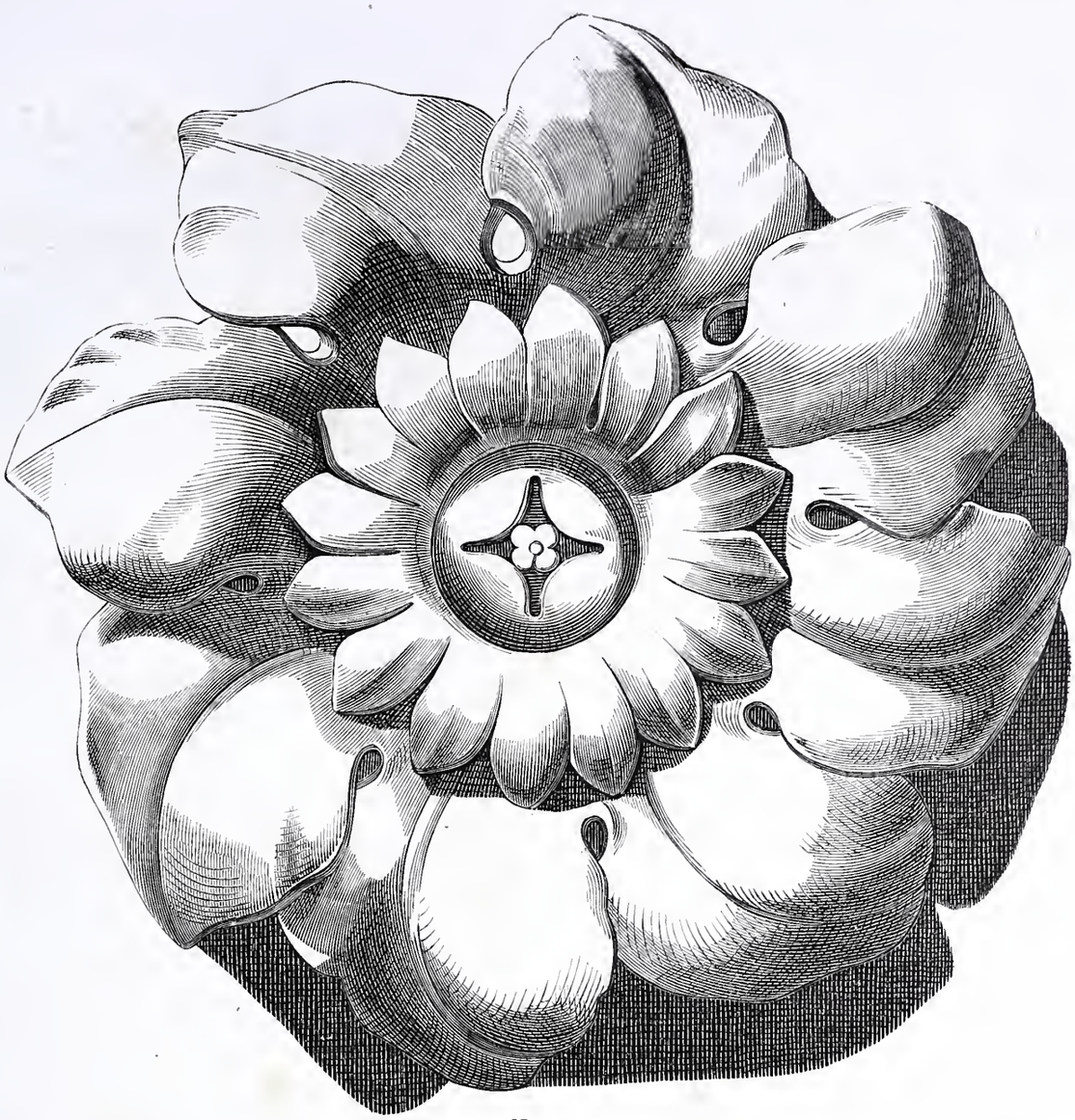
Specimens of Ornamentation.



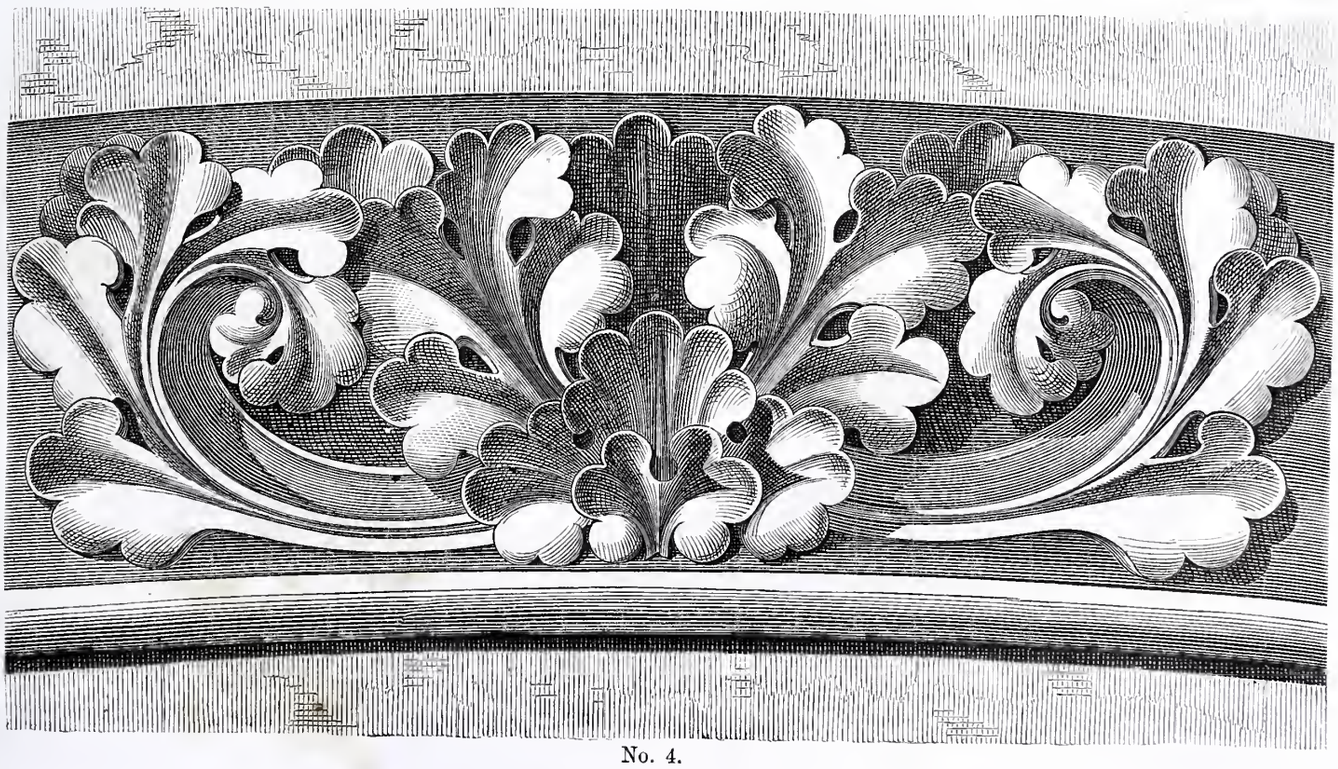
No. 2.

No. 1.

Nos. 1 and 2. Grecian Style; Antefix from the Propylæa at Athens; elevation and profile; ½ of real size. The antefixæ of the ancients are ornamented tiles placed on the top of the cornice or eaves, at the end of each ridge of tiling. Sometimes of marble, but generally of terra-cotta, they are ornamented with a mask, honeysuckle, or other decoration, greatly resembling the upper part of the Grecian Memorial-stone or Stele.



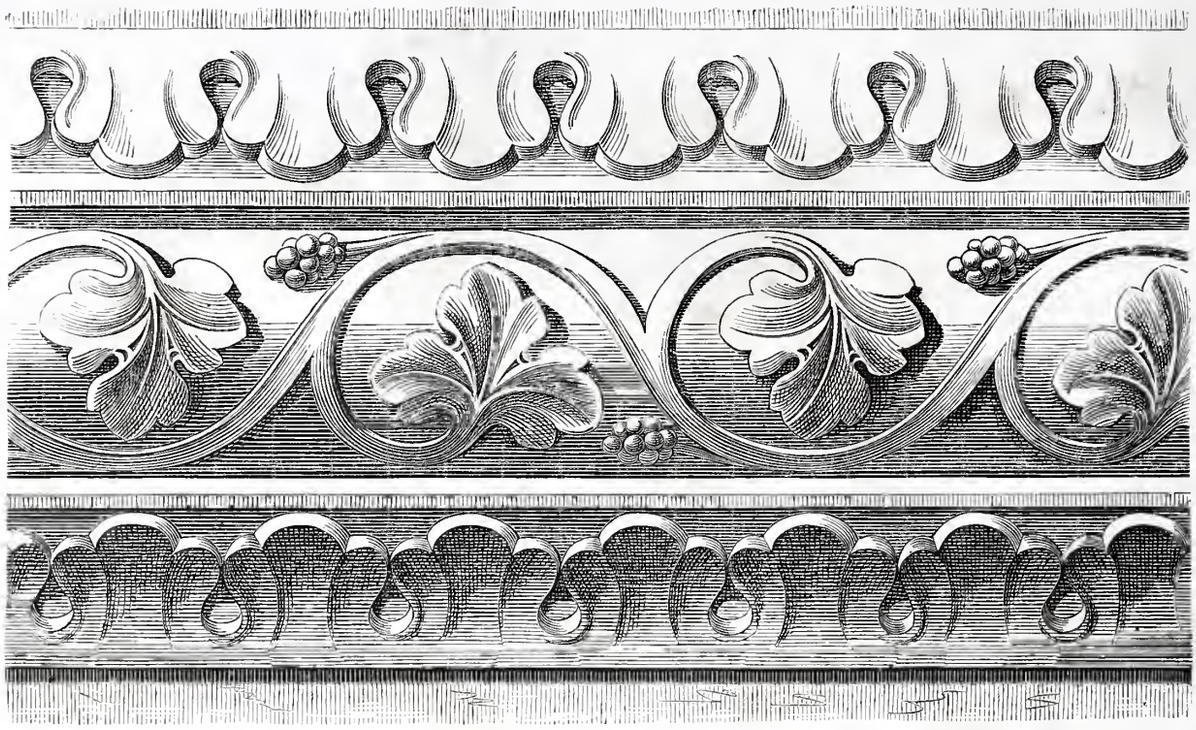
No. 3



No. 4.

No. 3. Roman Flower.

No. 4. Early Gothic; Band of foliage placed in the hollow moulding round the principal Doorway of Notre Dame Cathedral, Paris.



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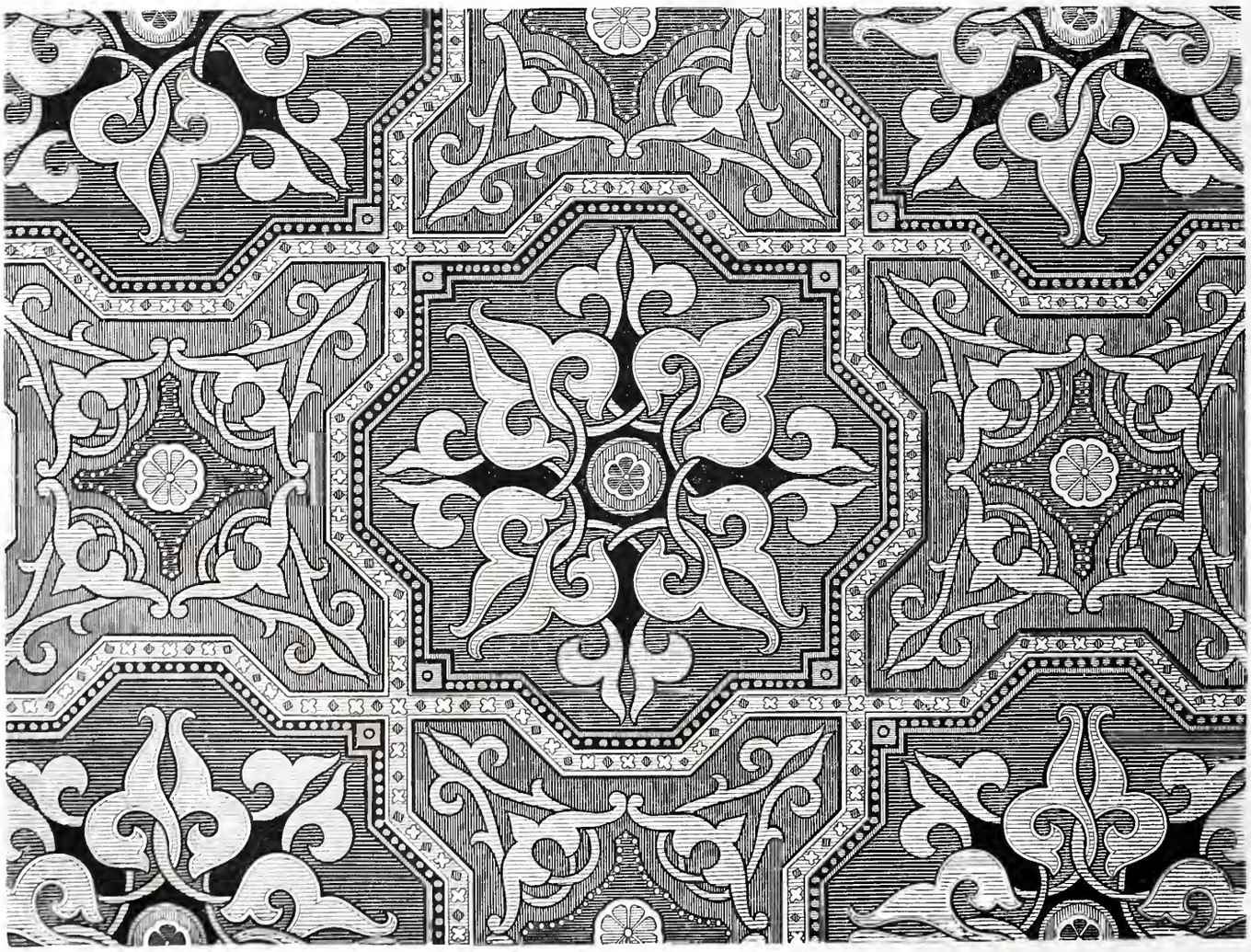
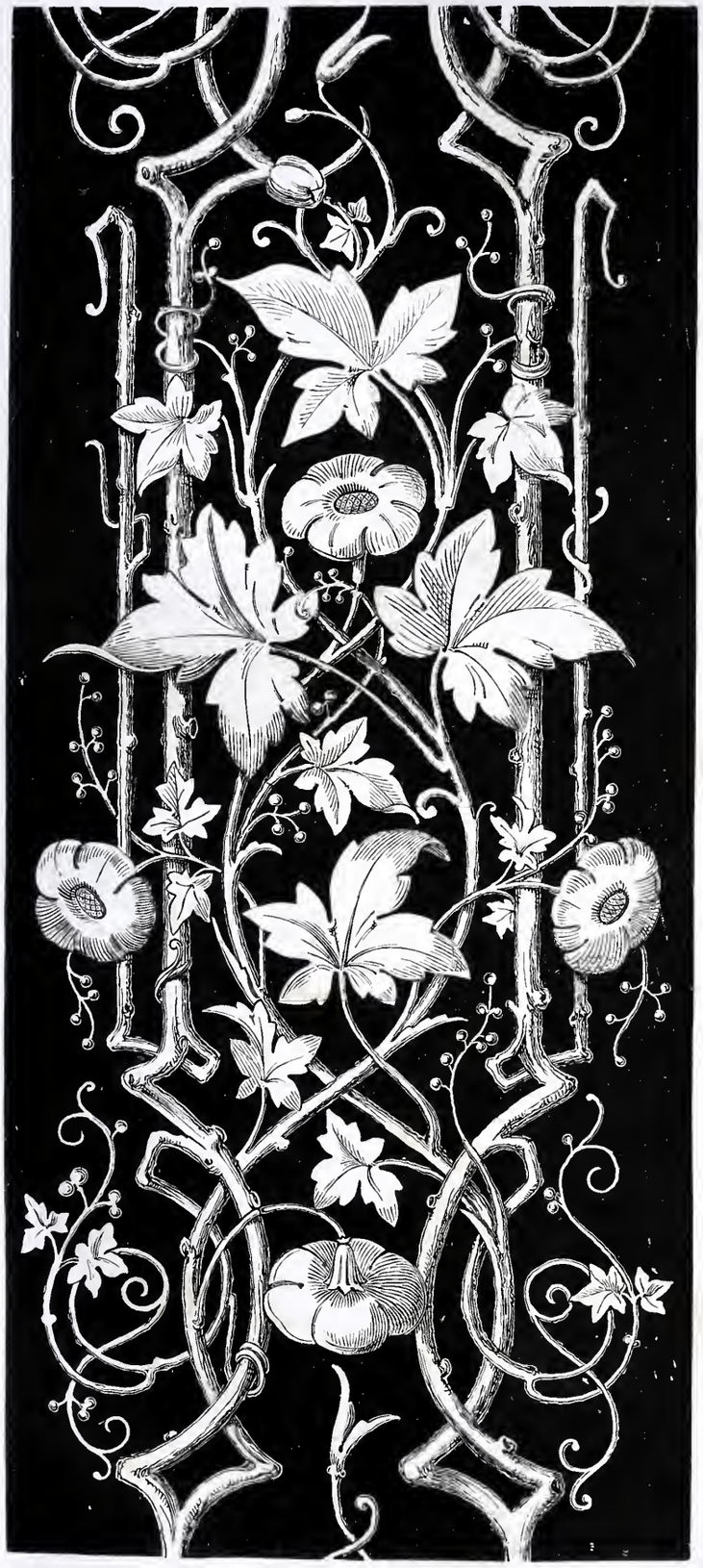


No. 6.

No. 5. Early Gothic; Ornamented Base Moulding from Porch of Sens Cathedral; France.

No. 6. Pattern of Carpet for Jacquard-loom. The leading features of the pattern show alternately repeated, geometrical compartments, with ornaments in light-brown edged with black and yellow, on crimson ground for the large octagonal, on ultramarine ground for the other compartments; the intersecting geometrical bands showing yellow stars and blue dots on light-brown ground, edged with yellow, black and blue lines.

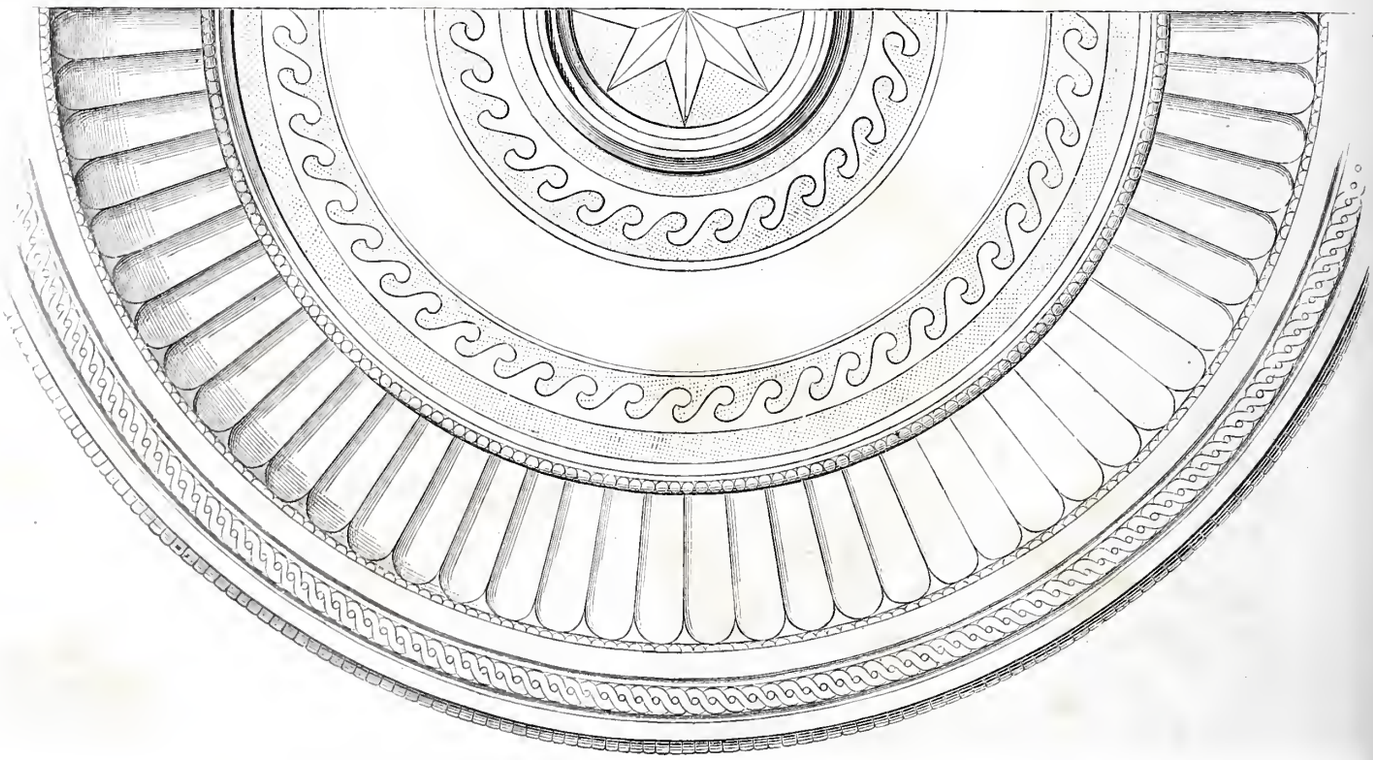


No. 7.

No. 8.

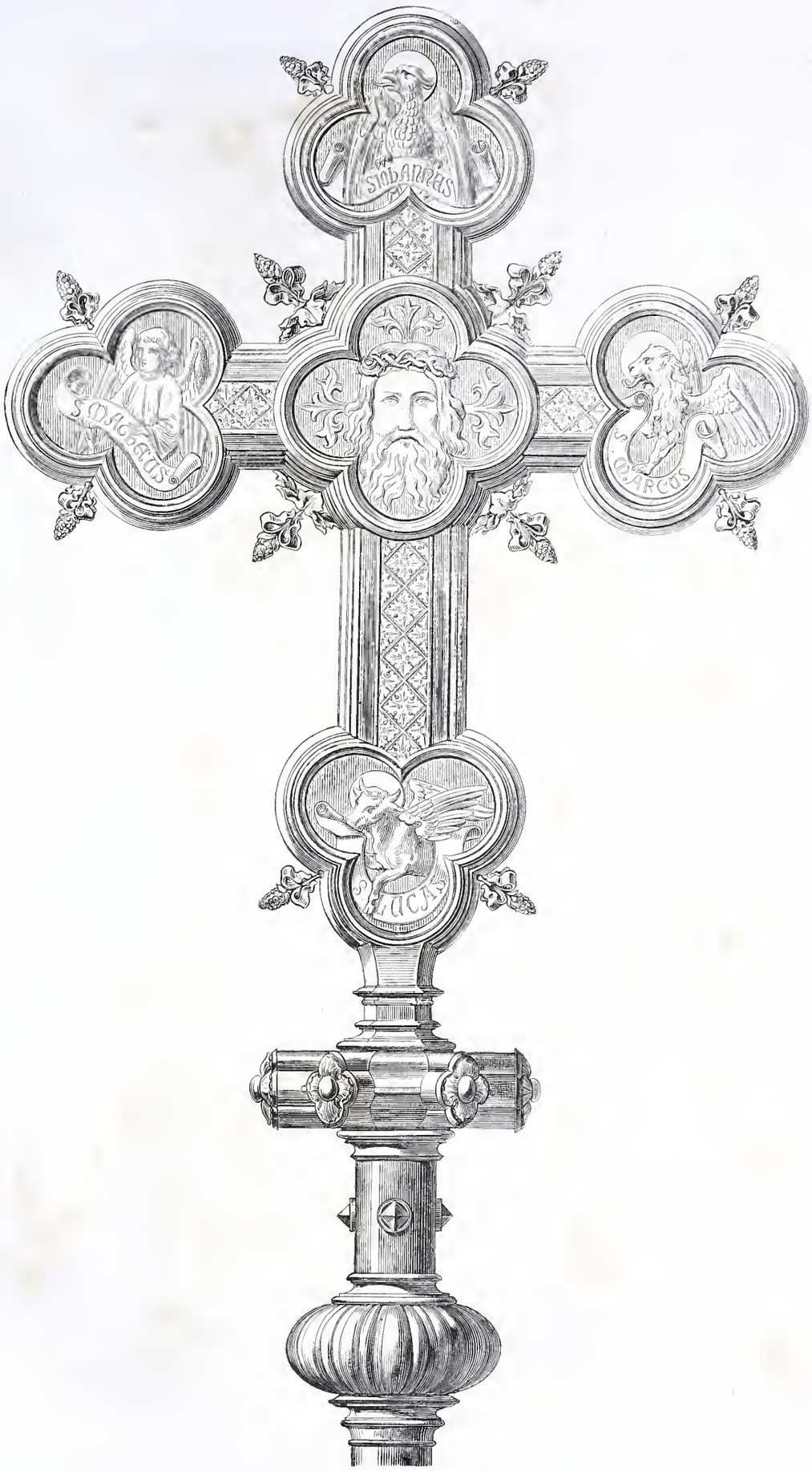
Nos. 7 and 8. Modern Cast Iron Panels.

No. 10. No. 9. No. 11.



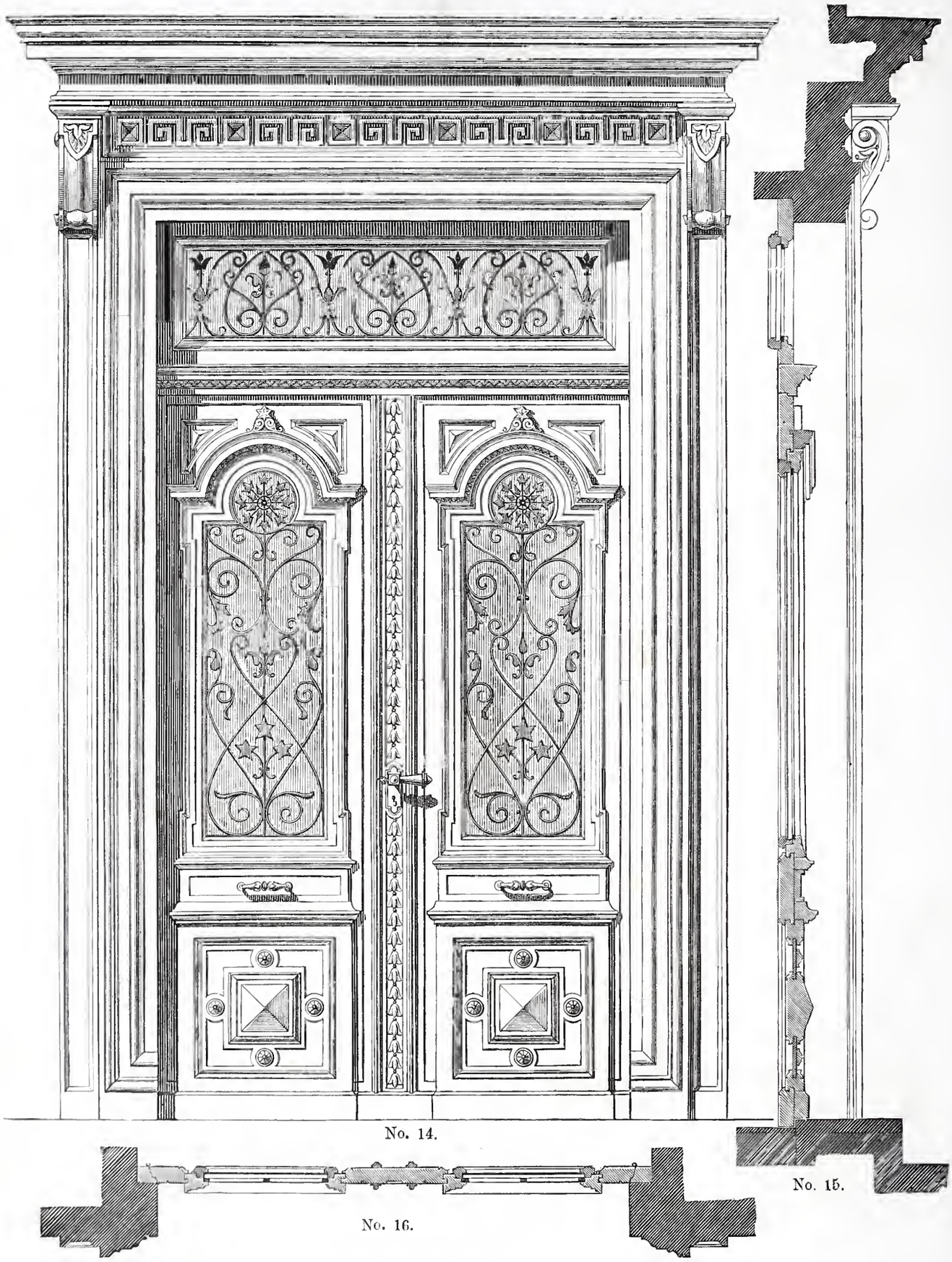
No. 12.

Nos. 9—12. Silver Goblet with Salver; intended for a baptismal gift, and designed by M. Semper, Architect. No. 11 shows full-size design of under, No. 12 of upper side, No. 10 of profile of salver; the tablet with frame mountings contains the name; the ground of tablet that of upper side of salver, ornaments, and central star, representing the arms or device of the family, in dead silver, the goblet highly polished.

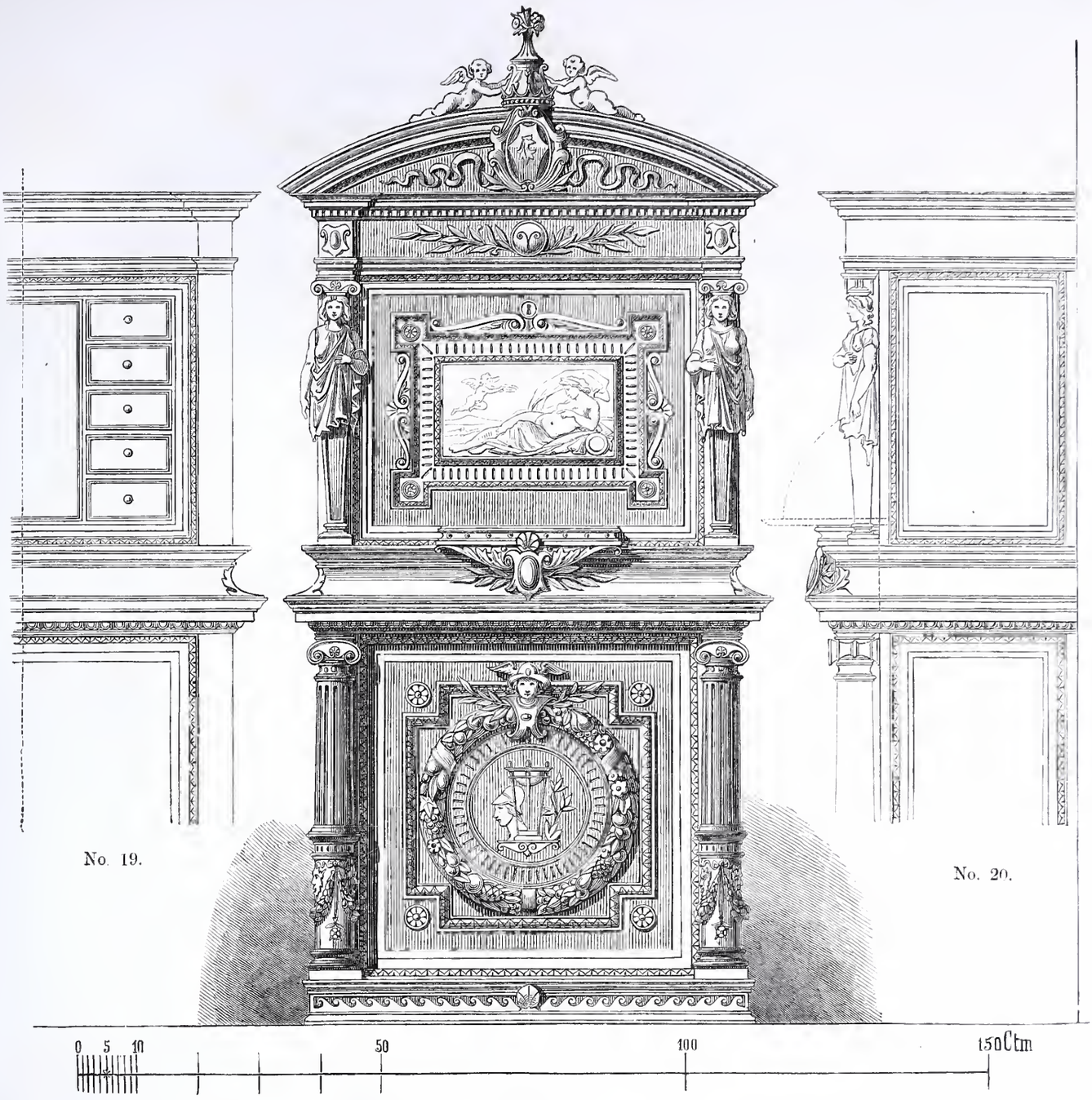


No. 13.

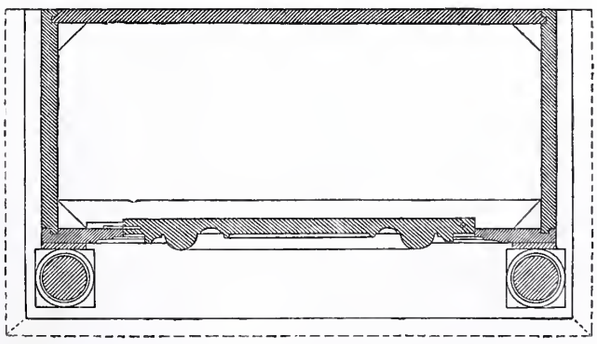
No. 13. Processional Cross; designed by Prof. Fr. Schmidt, Vienna.



Nos. 14—16. Panelled Oak House-Door; elevation, section and plan in 1/15 of real size. The upper part, as well as either side of door, with glazed casements arranged for opening, and screened by painted cast iron grilles, the oak being oiled and varnished.

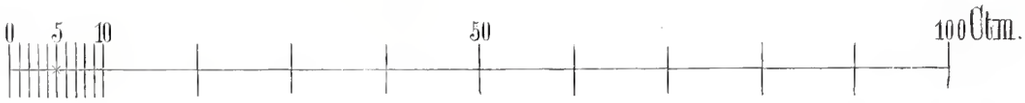


No. 17.



No. 18.

Nos. 17—20. Carved Ebony Cabinet for Jewellery, etc.; the centre medaillon of pedestal door, the initial plate with laurel branches decorating the frieze of the entablature, and the cherubs surmounting the curved pediment chased in oxydised bronze; the pictorial subject in the panel of upper part enamelled or painted on porcelain; all the decorative carvings, the ornamented mouldings of doors, panels, plinths, etc., the caryatids, and columns, whith the exception of the flutings, in *mat* color, the plain parts being highly polished. The upper part with drawers, fitted for jewellery, the fronts in maple relieved by gilt panel mouldings, the door, arranged for folding down, to serve as shelf or tray, and lined with green cloth. — For full-size details see No. 4 of Supplement.



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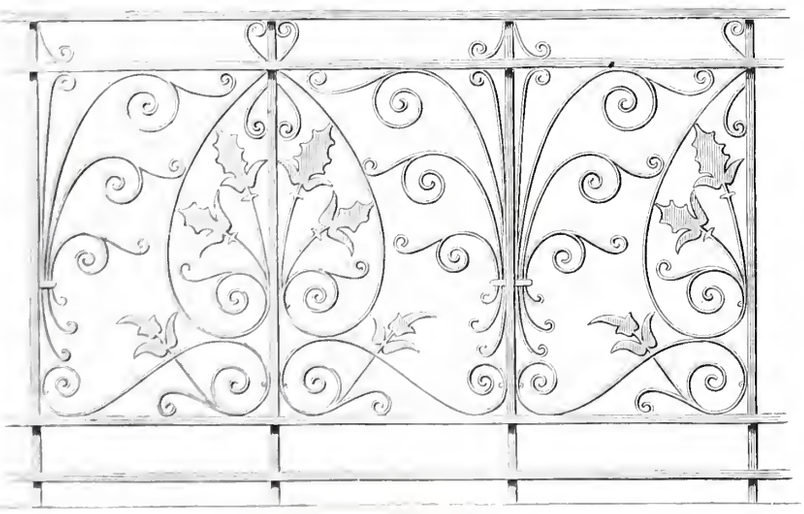

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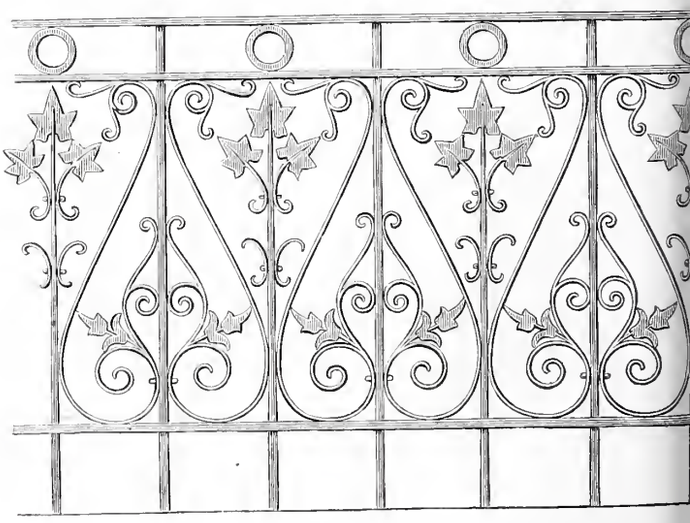
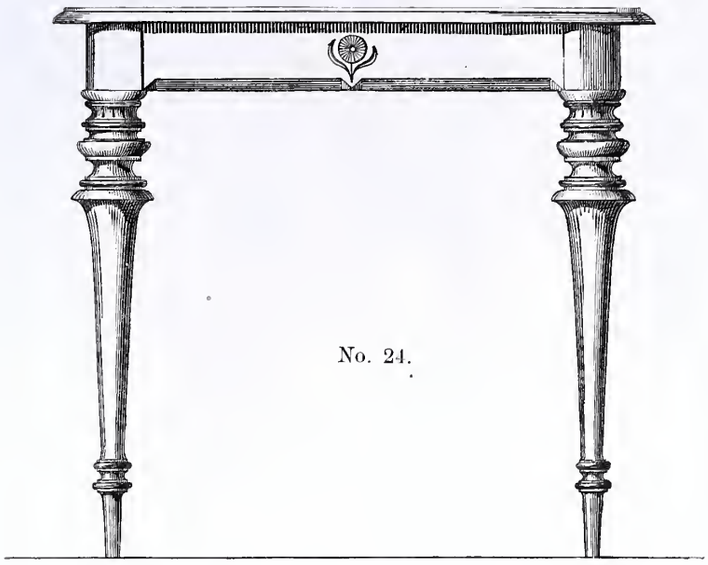


No. 23.

No. 21. Writing Table in light Oak; for details see Nos. 1—3 of Supplement.

Nos. 22 and 23. Wrought Iron Balcony Railings.



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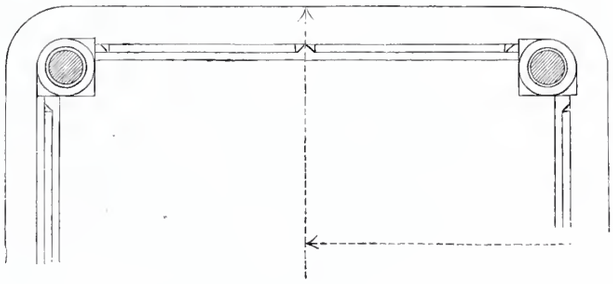

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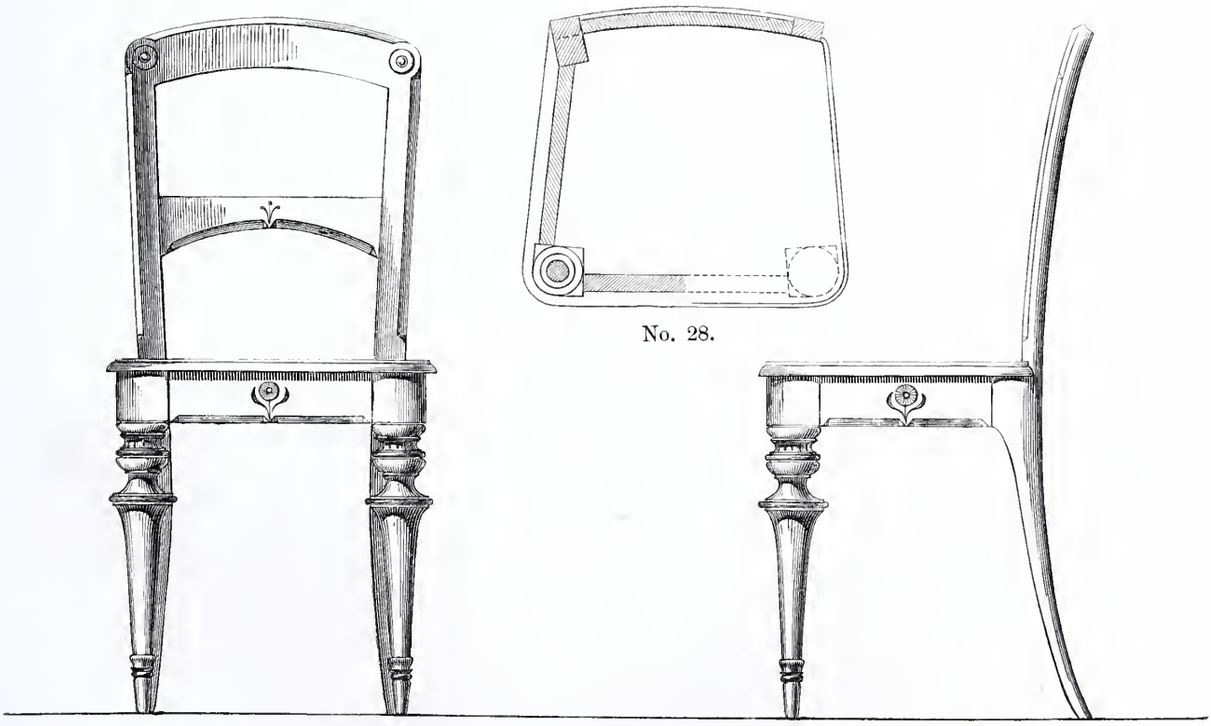
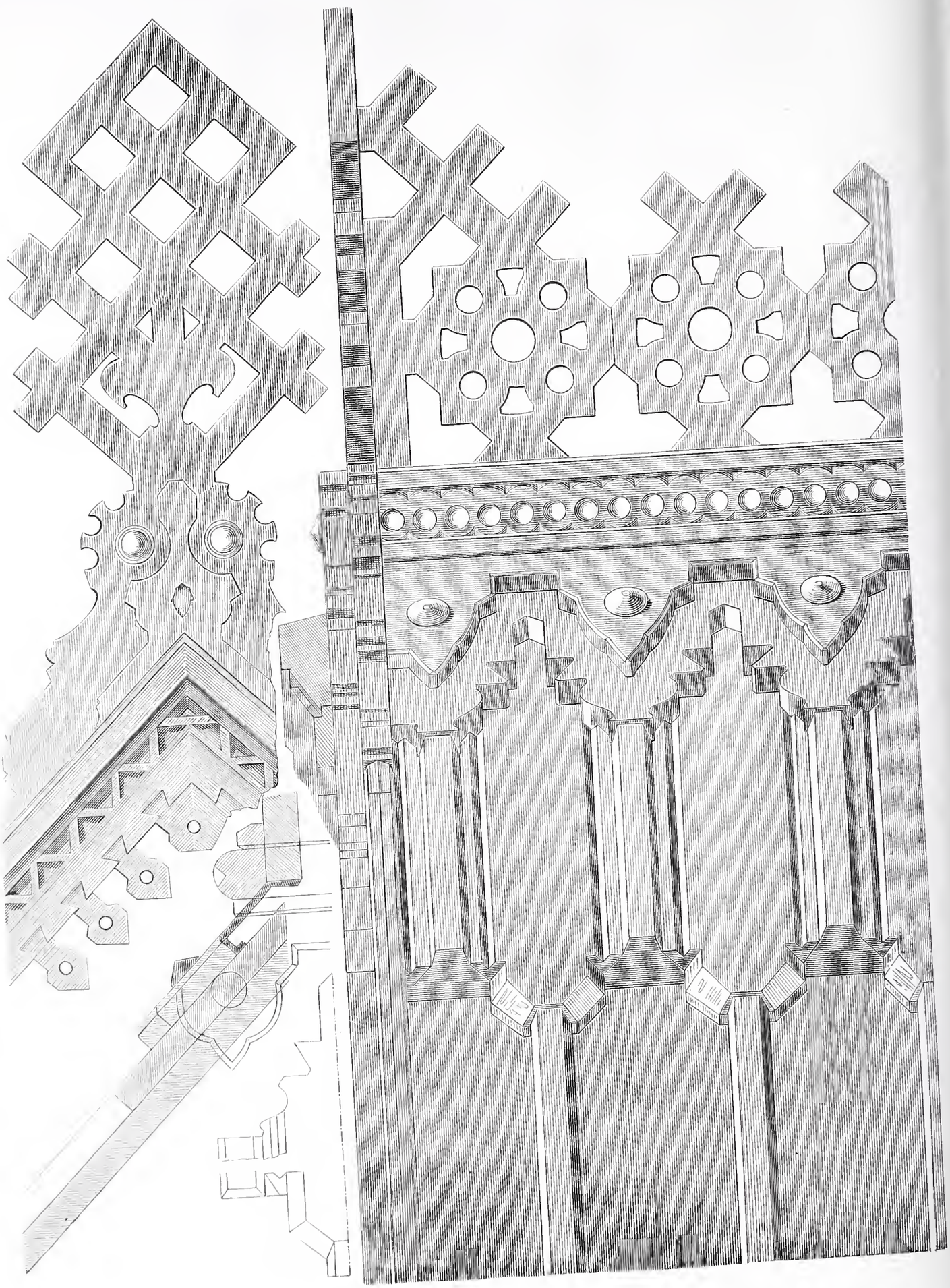


No. 28.

No. 26.

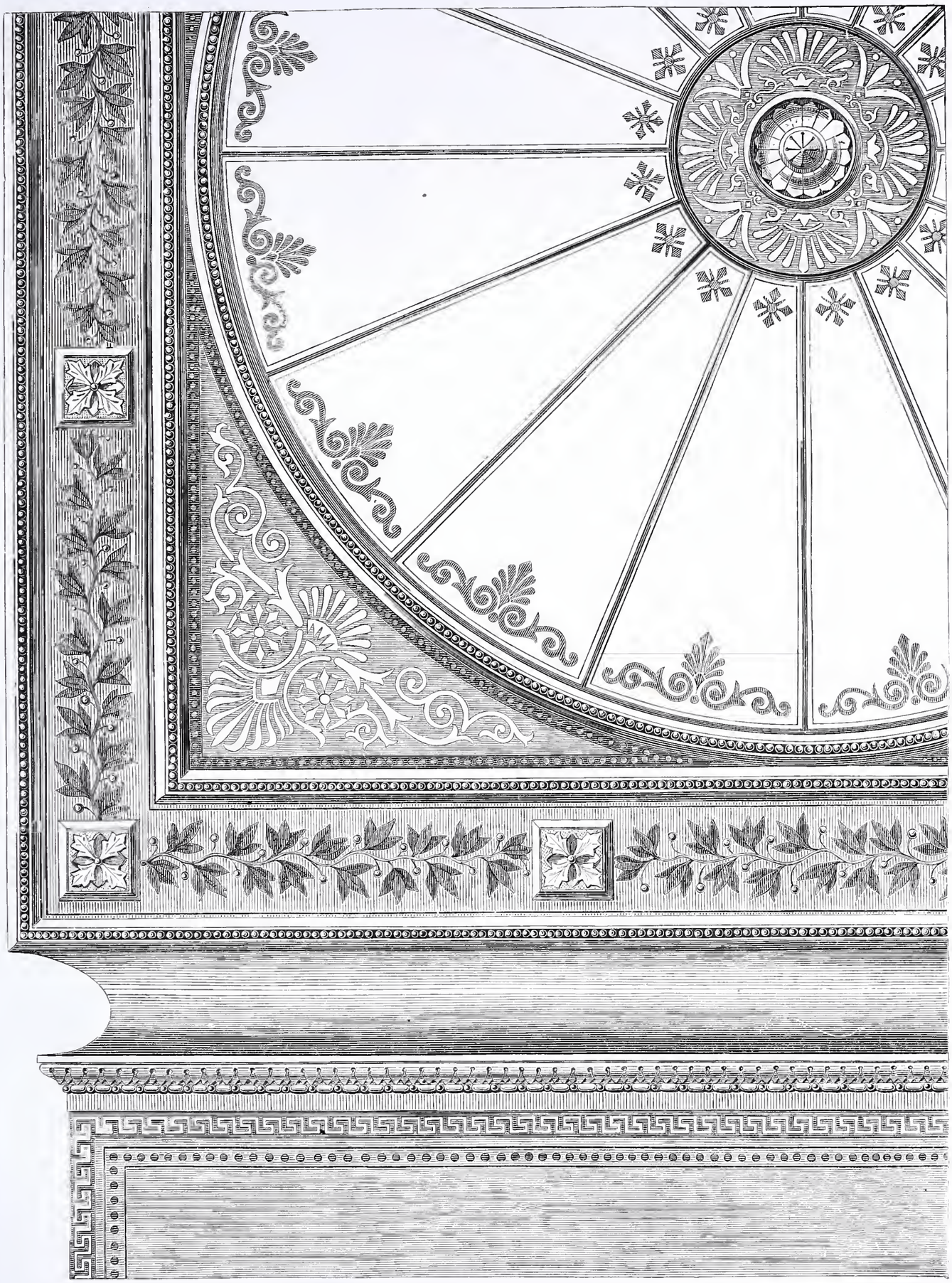
No. 27.

Nos. 24—28. Simple specimens of Tables and Chairs for Eating-houses, both of light ash, the feet of beech; for full-size details see Nos. 5 and 6 of Supplement.



From the Paris Exhibition.

Nos. 29—31. Finial and Cresting in Wood; 1/4 of real size; for the Russian section, designed by M. Bénard, Architect, Paris.



No. 32. Modern Ceiling with upper Cornice and Portion of Wall Decoration; the ground-color of wall light-green, the borders dark-green, enriched with gold frets, and tints of ceiling to match, the ornaments round the central stucco flowers, and in the spandrels being picked out in gold.

VARIOUS.

Antique Vessels.

The fragments and remains of ancient pottery have always furnished the antiquary with a rich source of information of every kind, and been a favourite branch of study. It will have been obvious, at a glance, to every one who has visited a museum, that the antique pottery is in reality of two kinds or qualities; viz., the one composed of a coarser, not particularly homogeneous mass, of coarse grain and very porous texture, and generally composing the vessels of very large dimensions; the other consisting of a very homogeneous, fine and much denser mass, to which the Etruscan vases and the more common vessels of *terra sigillata* belong.

To the first class, besides the lachrymal and cinereal urns from the graves of the ancients. belong more particularly the so-called *amphoræ*. These are gigantic vessels, often attaining the height of 8 feet by 3 feet in diameter, with a corresponding thickness in the body. The body is generally of a light color, but often black, soft, capable of being scratched with the knife, and contains a cement, often quartz-sand or sand composed of calcareous spar, to diminish the amount of contraction. Fragments of similar vessels (which were also known to the Celts) have been found in osseous caverns, under conditions and circumstances which refer them to a period very much anterior to the history of Rome or Greece.

The fine varieties of antique earthenware are always colored in the body: some are black, others of a dirty-red or brown-red, others again of a beautiful bright-red color (*terra sigillata*) like red sealing wax. These vessels are sometimes void of all exterior coating, and are smoothed on the surface previously to being thoroughly dried; or they are covered less frequently with a layer of lighter colored material, while the interior is composed of a dark colored clay: sometimes they are coated with a peculiar glaze-like substance; or, lastly, ornamented with flat designs upon the surface. These are either brown upon yellow ground, or black upon bright red, or *vice versa*.

The numerous analyses which have been made of fragments of Etruscan vases, have yielded from 60 to 69 p. c. silica, 12 to 16 alumina, 7 to 8 oxides of iron and manganese, 2 to 4 lime, and 2 to 3 magnesia; the substance, therefore, appears to have been formed from ordinary potter's-clay. The color of those specimens, which are black throughout, is due to $1\frac{1}{2}$ to 3 p. c. of carbon, derived from a smoking fire. These vessels have not all been fired, and when they have been put through that process, the heat employed has not been great; the moulding on the contrary, which has obviously been performed upon the potter's-wheel, is very perfect, and figures in relief, obtained from clay moulds, are also of frequent occurence. The vessels prepared from *terra sigillata* contain more oxide of iron, as much as $12\frac{1}{2}$ p. c., which accounts for their red color. The glaze-like surface of these red vessels is very little colored, remarkably thin, transparent, and composed of 64 silica, with 11 of oxide of iron and 20 soda. The black glaze is of very similar composition. It is quite impossible to specify whether these were obtained by means of salt or otherwise. The white castings which are sometimes met with upon red vessels consist of pure clay, containing no lime or magnesia, but a little iron. Designs in relief were also produced by castings. The coating of glaze upon the vessels, as they are met with in Magna Græcia, is a vitreous compound, containing a large quantity of iron; the black color of this thin layer of glaze which is very common, as well as the designs produced upon a light ground, is derived, according to Salvetat, from iron and manganese, and can be imitated.

Employment of Calcareous Tufa for the Production of a Fine, Artificial Marble.

The Calcareous Tufa or Tuff varies much in its texture, being sometimes compact, stalactitic, in form of hollow tubes, leaves, and moss, and often occurring as a spongy, loose, and porous kind of stone, of various tints, light grey, yellow, red, or brown, frequently enclosing fragments of grass, ferns, and herbs of modern origin.

Its fracture is uneven, granular, earthy, opaque, dull, soft.

Consisting chiefly of carbonate of lime it generally derives its color from a casual intermixture of more or less oxide of iron.

It occurs near limestone-rocks, and is formed, sometimes before our eyes, by deposits from springs and streams which quickly incrust any object immersed in them, depositing on it the lime they hold in solution.

Calcareous tufa is frequently met with, and constitutes an excellent material for building purposes; being a bad conductor of heat it forms very dry and warm walls; but must not be used for masonry when moist or fresh from the quarry, as frost might cause it to burst. The softer and porous kinds of tufa may be worked by sawing or cutting, but cannot resist any great amount of pressure, for which reason, especially for vaults, piers etc., it ought to be employed with great precaution.

The following process will however greatly increase its hardness, serving at the same time for the production of a fine artificial marble of any intended tint and color.

For this purpose the tufa, after being sawn into slabs or blocks of the required size, and exposed to the air for some time in order to dry, receives a first polish from suitable implements or materials, in order to produce a perfectly even surface; after which, according to the desired tint, the color is applied on the polished tufa by rubbing it into the pores or interstices with a dilute solution of soluble glass, (water glass) rendering as exactly as possible the character of the veining. When the mixture appears perfectly dry the surface is twice brushed over with a dilute coat of soluble potash glass, after which the slabs or blocks are allowed to dry again. In fact by this process an insoluble silicate of lime is formed, rendering the stone almost as permanent and hard as granite.

When the slabs are sufficiently dried they receive a second high polish in the usual way, after which they are again coated over with a concentrated solution of the potash glass, of a specific gravity from 1.20 to 1.25.

After the drying of this last coating the stone to treated will bear the most brilliant polish, showing altogether the characteristic properties of polished marble of superior quality; and can now be employed for facing walls, columns etc., in the same manner, and in fact for all the different purposes for which real, polished marble is used.

We may add that slabs of great beauty, brilliancy of color, and perfection of marking have been obtained by adding a little bronze at different places, after having applied the colors, and in connection with them.

As to the permanency of polish in the stone so treated, and its resistance to the destroying influence of the atmosphere, we can speak most positively. Having for several years given great attention to this point, and having subjected specimens of this factitious marble to every test of change of temperature, moisture etc., we have found neither the polish in any degree affected by them, nor the specimens themselves at all deteriorated by their influence.

A.

The Workshop

A Monthly Journal, devoted to Progress of the Useful Arts

EDITED BY

PROF. W. BAUMER, I. SCHNORR AND OTHERS.

VOL. I. No. 8.

On Italian Renaissance in its relations to Architecture and the Industrial Arts.

To resuscitate Antiquity was the aim of those grand Italian artists of the 15th and 16th centuries, and indeed they succeeded in reproducing in their creations the eternal and immutable laws of the Beautiful as thoroughly as the Ancients during the periods of their greatest achievements in Art. The latter, refined by earnest study which can be traced back to the earliest times, to a degree which now only are we able to appreciate fully, give in all their artistic productions, from the temple down to the smallest vessel, a truthful expression to the first principles of Beauty in Art, — Uniformity and Simplicity. Adhering to these, they produced monumental structures, marked by grandeur of conception and disposition, and enhanced by the most exquisite finish of workmanship and execution in the costliest materials. Beholding, for instance, the Colosseum at Rome, its imposing grandeur forces itself on the mind at the first glance. Merely a gigantic oval of four stories, the three lower ones consisting of deep, semi-circular arcades, divided by simple columns, supporting bold, unbroken entablatures, crossing the building in long vanishing lines of the most graceful curvatures, we are struck by its wonderful dimensions, its great boldness and beauty of disposition. It is the repetition of arch beyond arch, and story on story, that gives a variety and an appearance of size; and, combined with its magnitude, its form and its associations, leads the mind on, to realize that overpowering impression this building produces.

The same fundamental law runs through all the creations of Classical Art down to the smallest objects worked by hand, witness the Pompeian vessels and utensils; everywhere we see the same simplicity and harmony of form, the graceful sweep, the admirable elegance of outlines, while the decorative devices, generally arranged near the brim in form of flowing scroll borders of flat, conventional design, frequently inlaid in silver or tin, by no means interfere with the contours. Only at the spout and handle are thrown off rich ornaments, clinging round the body and neck of the vessel. But even the slightest surface ornament is most exquisite and elegant in all its details, as if to rival and idealize nature. Evidently form and proportion are the prominent features in all these productions, great or small, and guided by these principles the Greeks attained the acmè of perfection. For the most part very simple relations, elaborated and established by practical experience through century after century, the hallowed traditions of proportion, transmitted from generation to generation through all the later periods of Art, have imparted to the Renaissance epoch a degree of refinement and perfection in which it may vie with the best time of Grecian Art, and caused it to maintain its hold till long afterwards, when, during the age of Louis XIV and XV, it helped to preserve art in its decline from utter ruin and destitution. We, however, less fortunate, are reduced to give ourselves up to laborious researches, in order to recover what the preceding generation allowed to fall into oblivion.

For many the Renaissance is nothing but the reintroduction of Classical forms, the servile counterfeit of some obsolete style. But most of the creations of the Antique, being true and living utterances of fundamental and unchangeable laws, are above all suggestive of the first and indispensable requirements of any work of art, viz., truth, fitness and beauty. Moreover the Italian nation at this epoch was imbued with a degree of expressiveness and individuality, and with an exuberance of vigour which found their natural course only in the creation of new and original forms, and in the exercise of their own inventive genius on old traditional ones, which, chosen with great care and judgment, they elaborated and made their own. Thus the great masters of the Renaissance period never fell into the same errors which we observe in the later productions of Roman Art; for the Cinquecentists, by the presence of a refined taste, and innate perception, by a wise and noble economy of the resources of their art, created works which in some respects range with, and are scarcely surpassed by, the great master-pieces of the Greeks.

In the year 1402, while excavating, to the very

basements, the ruins of ancient Rome, half interred amongst wild heather and rubble-work, young Brunelleschi and his friend Donatello were taken for seekers after hidden treasures and became the objects of public raillery. But they found a treasure which, at the dawn of a new era, soon placed their time in the van of Modern Art. In order to gain his livelihood, and while becoming familiar with every form of Roman Art, Brunelleschi, being also a skilful goldsmith, enchased precious stones in gold. A child of that happy age, which was distinguished by the association and equality of all the branches of art, he was one of those artists, who, under the hardships of life, had to master the difficulties imposed by the material, while we, their disciples and followers, work far too much, from the time of our infancy, on the patient surface of the paper.

Brunelleschi measures and draws at Rome, and when, in the year 1420, he reappears in Florence, his native city, everybody follows his lead because he is the man who knows what he means. Working with fire and energy he designs and establishes in grand strokes the leading features of modern architecture and decoration, thus leaving his mark on the Art of his age.

The dome of Santa Maria del Fiore is his work, the vaulting of which surpasses, in lightness, boldness and judiciousness of construction, all the Ancient Roman works. Its marble lantern, 70 feet high, is one of the greatest ornamental structures of the Cinque-cento style. In this and in other similar works, he seized on the circular form, in which the dome is the great feature, the lower part of the edifice being generally enriched by niches. Moulding the old Byzantine type to his fancy, he gives the impulse to those many domical churches, in plan the Greek cross, whose interior, by the harmonious play of the lines of its many curvatures, by the magical *chiaroscuro*, the concentrated light entering only from the top, produces a most fascinating impression on the mind, the exterior, full of sparkling effect, appearing like a marvellous, fairy-like structure in crystal. Compared with a Gothic church of the same size, the edifice, showing great repose and breadth of design, is quite otherwise imposing and majestic.

Bramante d'Urbino, born in the same year (1446) in which Brunelleschi, his great predecessor, died, is the designer of St. Peter's at Rome, one of the most sublime architectural conceptions that the world has yet seen. A gigantic central dome on a lofty tholobate or drum, forming a sort of clerestory for the introduction of light, surrounded by a colonnade, and crowning the intersection of the great barrel-vaulted nave and transept of the Latin cross, the four angles to be surmounted each by a smaller dome, the arms closed by semicircular apses, and corresponding colonnades, the pillars and walls relieved by niches, — such are the architectural features of a plan, marked by simplicity and grandeur which, had it been adhered to by subsequent architects, would have produced not only the largest and most magnificent, but perhaps also the most beautiful temple ever raised by Christians in honor of their religion.

An element which imparts to all those edifices of the domical type, from the Pantheon down to St. Peters, the stamp of architectural sublimity, is the admission of the light from the top, flowing down in mighty streams and producing, by contrast with the depth of shadow, an effect of great brilliancy which might have been turned to a better account in our constructions of recent date.

As types of the rectangular form, Brunelleschi erected the nobly conceived basilican churches of S. Lorenzo and S. Spirito, both Latin crosses with flat-roofed nave, the low, vaulted side aisles running all round the interior, the walls being relieved by niches, corresponding to each bay. This form however was abandoned again after him; but not so that of the small, but very beautiful church of Badia near Fiesole, so much the more interesting as being the type of all subsequent churches which have been erected in most parts of Europe up to our time. It is the Latin cross with the barrel-vaulted nave, the side-aisles divided into small separate chapels, a plan of great simplicity which however Leon Battista Alberti, born at Florence in the year 1404, grandly elaborated in St. Andrea at Mantua. The nave with the mighty waggon-vault coffered and painted, the form of the dome over the intersection of the nave and transept, these are typical features which are for the first time fully developed here, and to which Bramante added the circular apses at the extremities of the transepts and choir with concentric arcades or ambulatories in the interior.

It is again Brunelleschi who in Civil Architecture gives expression to the principles of uniformity and stability in the Florentine style of rustication of the façades of their magnificent palaces, a flat decorative treatment of the wall which characterises the massiveness and solidity of the material. All the fronts of the building are executed in boldly rusticated stones, diminishing in relief towards the upper courses, the voussoirs of the arched windows and doorways radiating towards the common centre, the basement high, massive, appropriately enriched, and capped by a magnificent cornice. There no central part projects from or recedes towards the rest, thus destroying the monumental dignity and repose of the surface; no broken stringcourses, bands, or pediments; not even grouped windows of fanciful design; none of those graceful caryatids of questionable taste; but few and deeply vaulted windows, divided by little columns with beautifully carved capitals, the stringcourses bold and vigorous, and the crowning cornice above all. Of great nobleness and elegance, it displays a profusion of gracefully designed, carved mouldings, beautiful Corinthian consoles, adorned with acanthus leaves; in the intervals boldly carved flowers in sunk compartments, its projection suiting the rustic mass below, which it so nobly crowns. Nothing is omitted to render it the greatest ornament of the façade, exhibiting a largeness about its parts, and a manly vigour of proportion, that make it the structural expression of a style of unsurpassed grandeur and magnificence.

Simultaneously with the spontaneous growth and development of Architecture, a great impulse is given to the Useful Arts; thus we see the art of the metal-

worker practised to perfection in connection with these rusticated façades. Wrought lanterns, torch, festoon and banner-brackets are projecting from doorways, windows and quoins; beautifully conventionalized dragons, griffons and reptiles, or other grotesque monsters and animals, also rich and luxuriant foliage, candelabra and standards, all beautiful specimens of wrought iron work always finely chiselled, but marked by size and massiveness so as to suit the style of the building, give life, elegance, and finish to the grand but sometimes gloomy surface. The doors, treated in the same manner and mounted with handsomely worked bronze-nails, are frequently panelled, richly carved and inlaid.

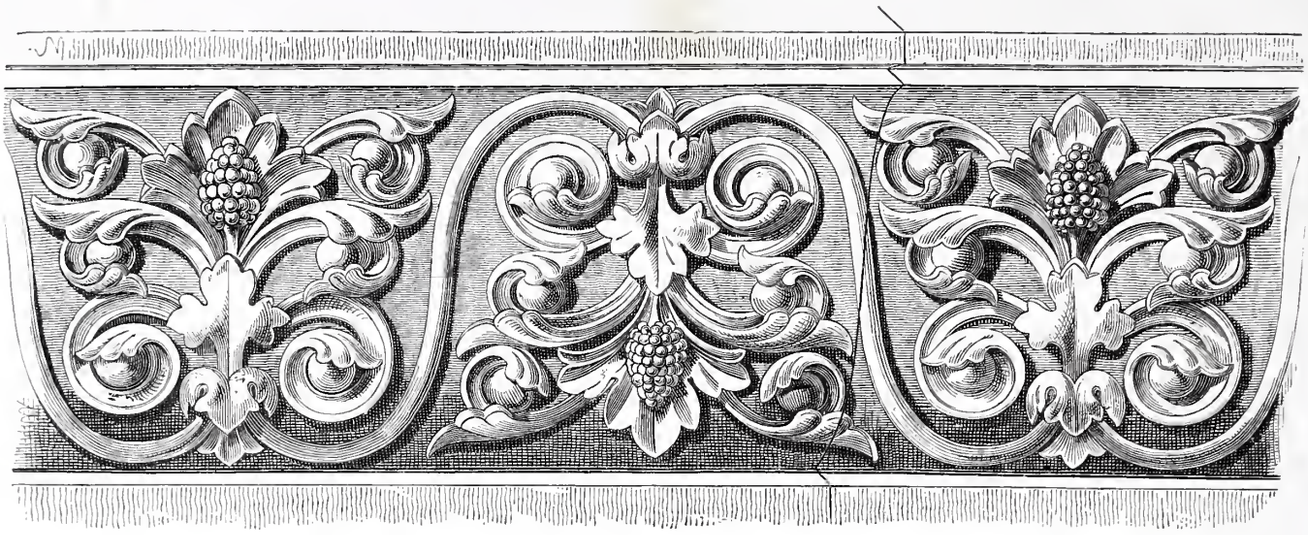
Another style of Palace Architecture, inaugurated by Alberti and fully developed by Bramante, has not the stern magnificence of that just mentioned; but it gains in elegance as much as it loses in grandeur. The rustication of the façade is less salient in projection, and the pilasters form an essential part of the design; but the ornaments of friezes and windows are so delicately and appropriately arranged, the relief so well proportioned to stringcourses and cornice, everything treated so gently and with so much taste, that the whole construction produces a most harmonious and beautiful effect. Bramante has shown here how pilasters are to be designed in order not to divorce the great masses: grouped together, and very little salient, they appear like the Grecian antæ, merely as a slight ornamentation of the surface. After this must be enumerated a group of numerous façades with pedimented doors and windows, flanked by pilasters or three-quarter columns, belonging to the 16th century, displaying a lightness and elegance of profile and detail throughout, which, though neither so grand nor so monumental as the older rusticated palaces, is more suited to modern ideas. Amongst the most characteristic of the whole series are the Florentine palaces, the Larderel and the Bartolini, from the designs of Baccio d'Agnolo, and the Pandolfini, ascribed to the celebrated Raphael d'Urbino.

The conclusion in our next.

Specimens of Ornamentation.

No. 1.

No. 1. Grecian Style, Antefixe of the Parthenon, Athens (see Part 7, p. 100).



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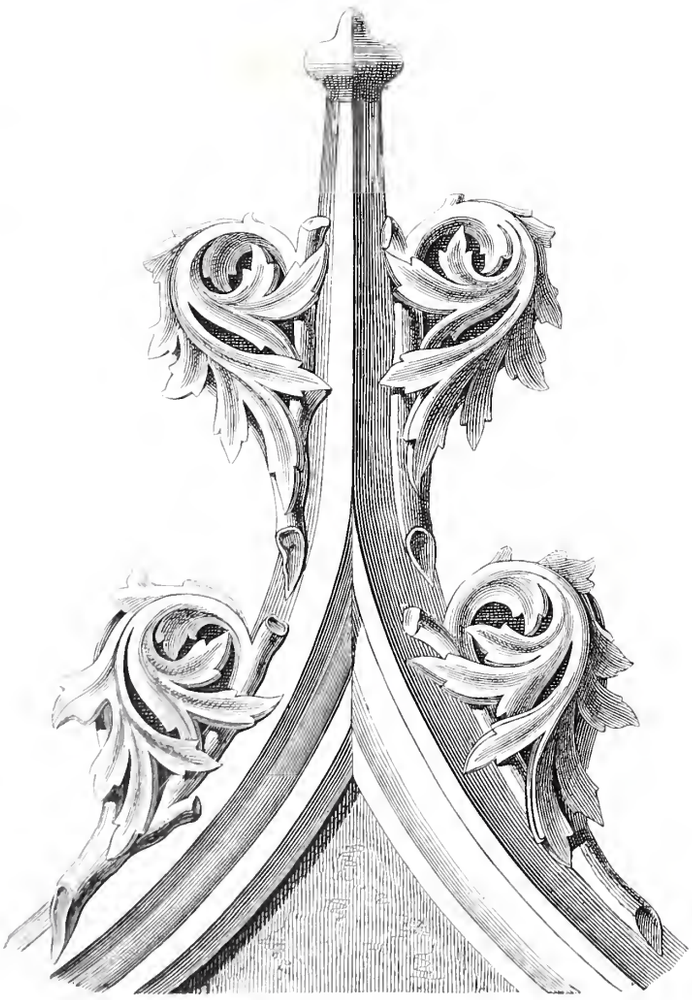
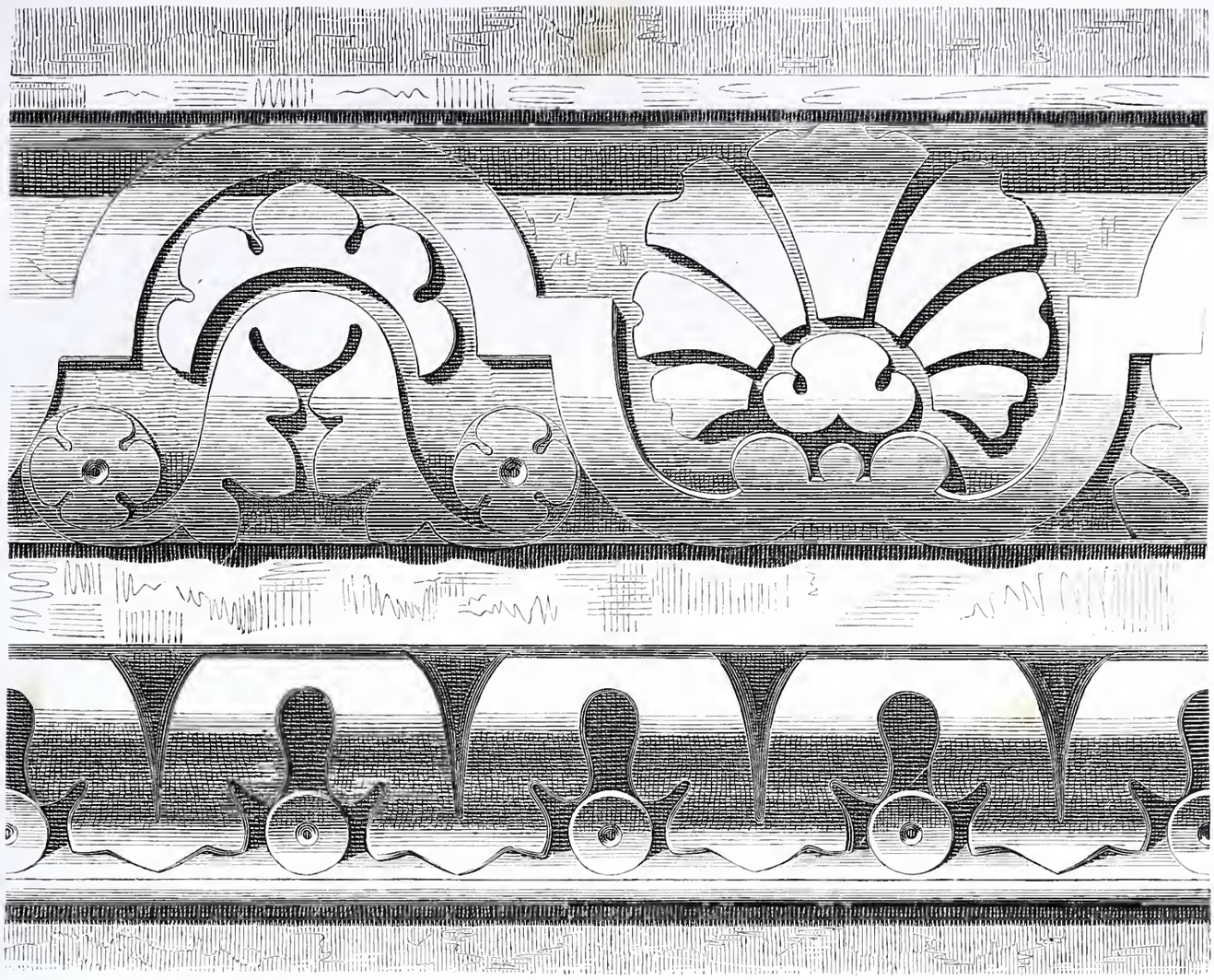


No. 3.

No. 4.

No. 2. Romanesque Style; Band of Foliage from gallery of West front of St. Remi's Church, Rheims.

Nos. 3 and 4. Late Gothic; Finials from Eastern Part of Chartres Cathedral.



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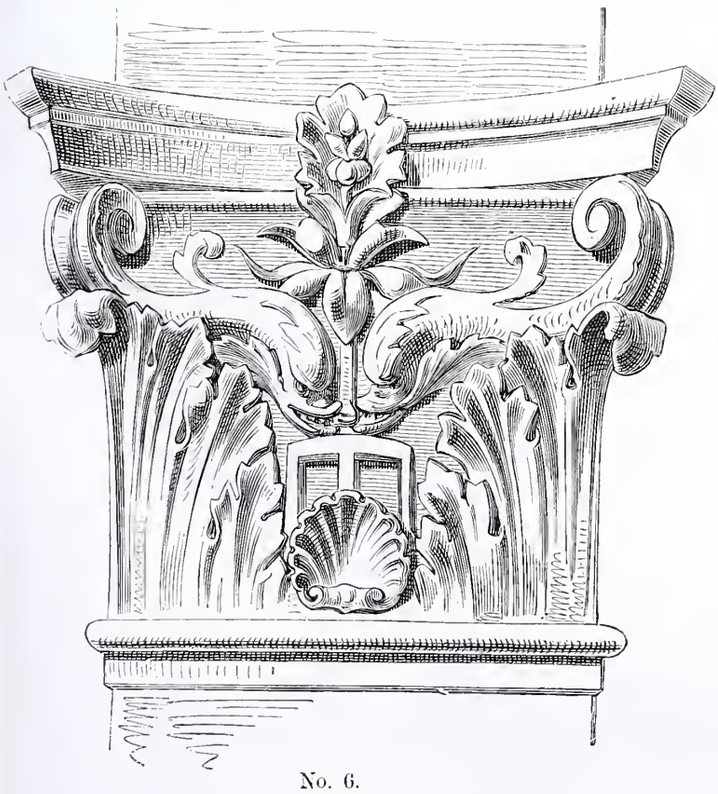


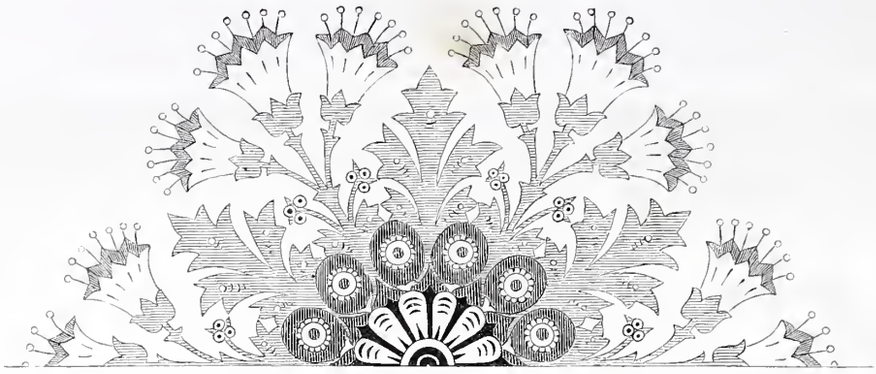
No. 6.

No. 7.

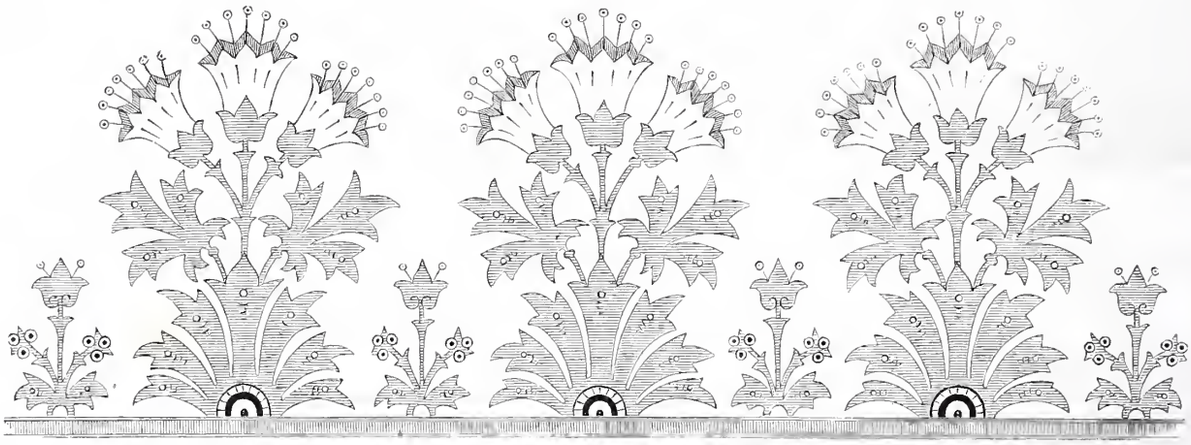
No. 5. French Renaissance; Style of Henry II. Enriched mouldings from the Louvre, Paris.

No. 6. Italian Renaissance; Capital of Pilaster from Church of Maddalena de Pazzi, Florence; 16th century.

No. 7. Modern Capital of Pilaster.



No. 8.



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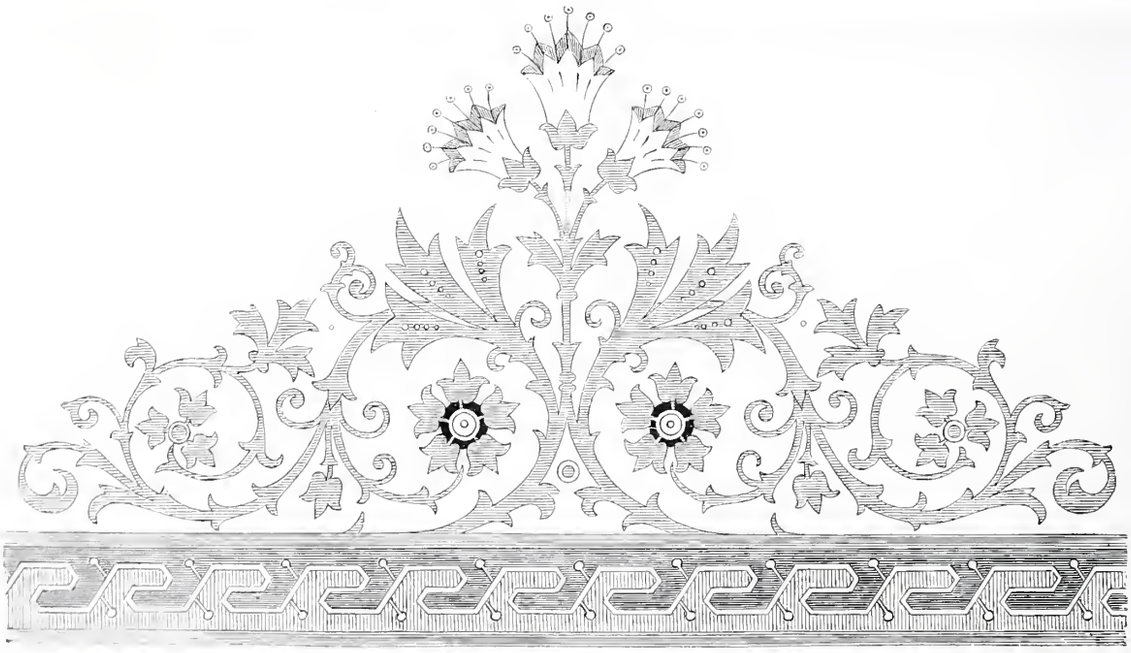

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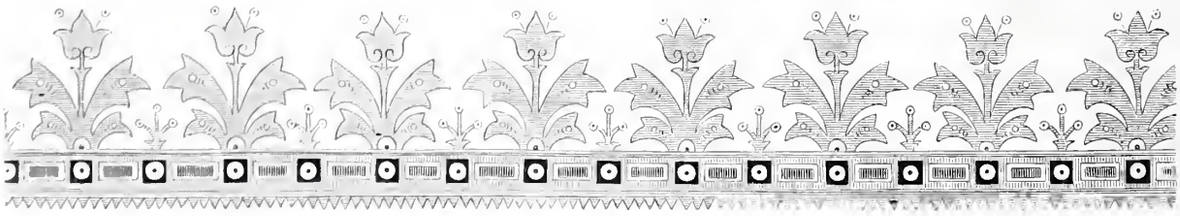
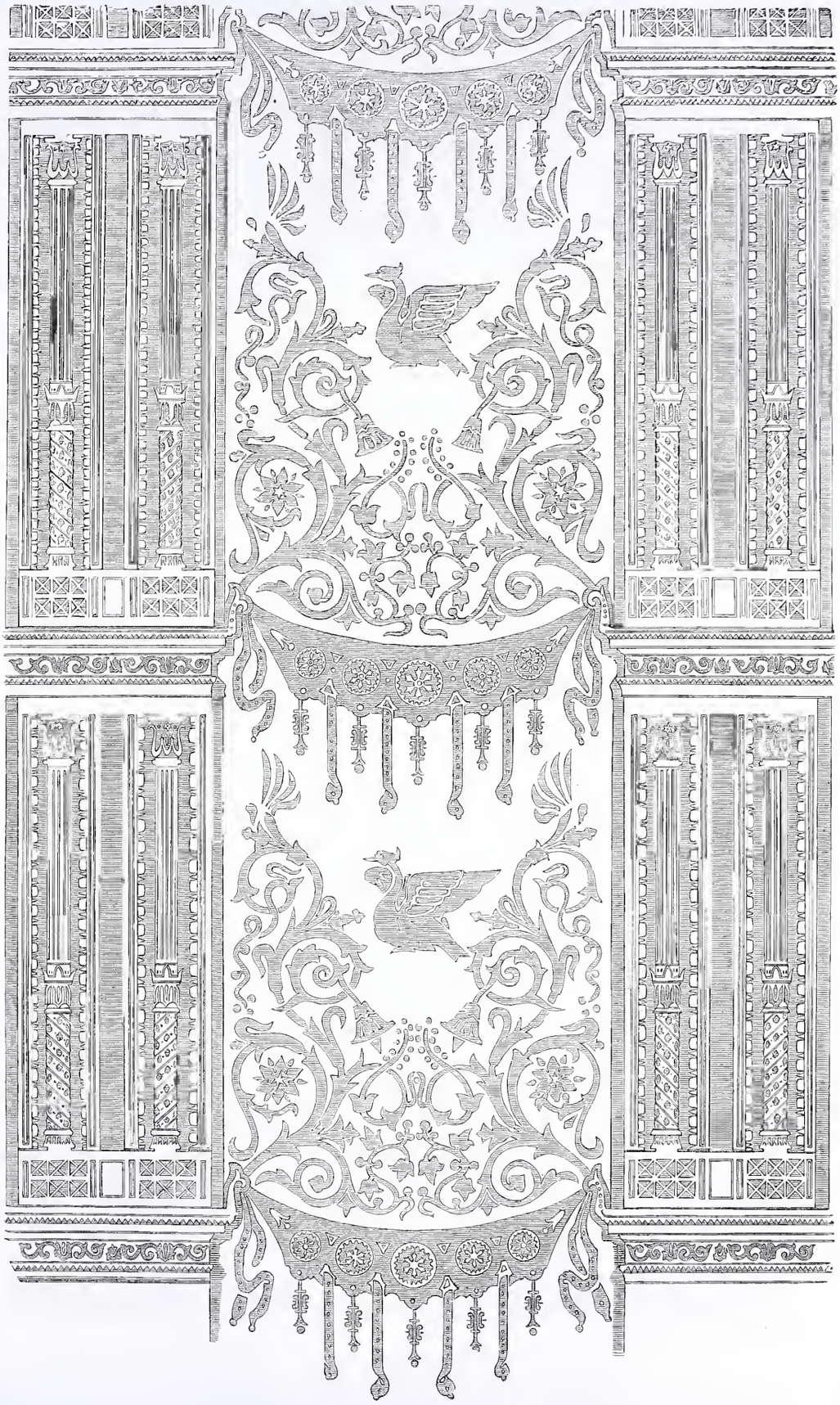


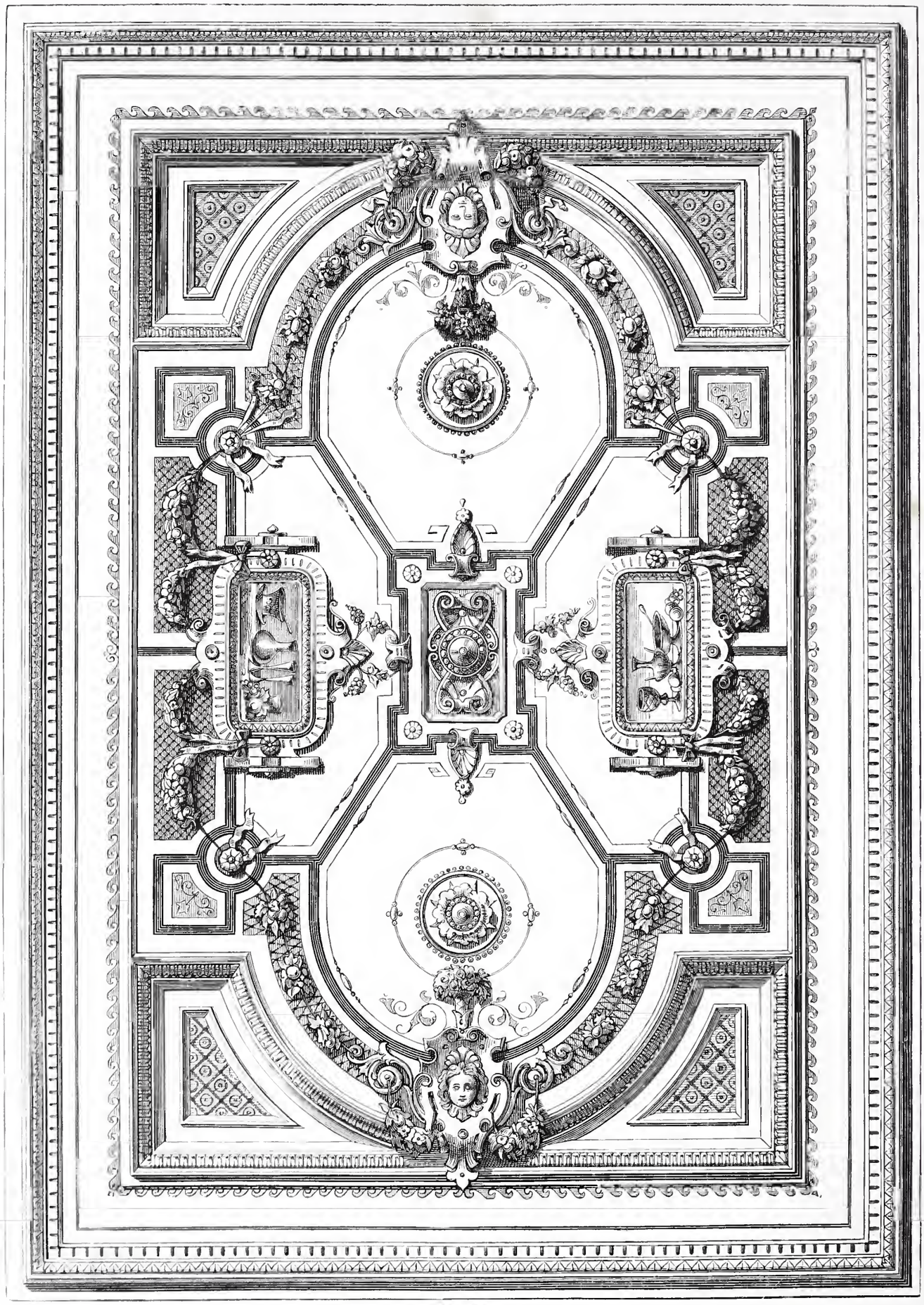
No. 11.

Nos. 8—11. Ornaments for Porcelain, Glass, or Metal.



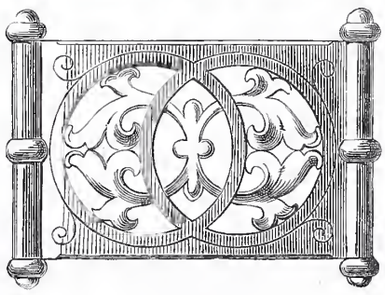
No. 12.

No. 12. Design for Hangings; Modern French Work. For full-size details see No. 4 of Supplement.



No. 13.

No. 13. Ceiling in Stucco, for a Dining-room, with two chandeliers.

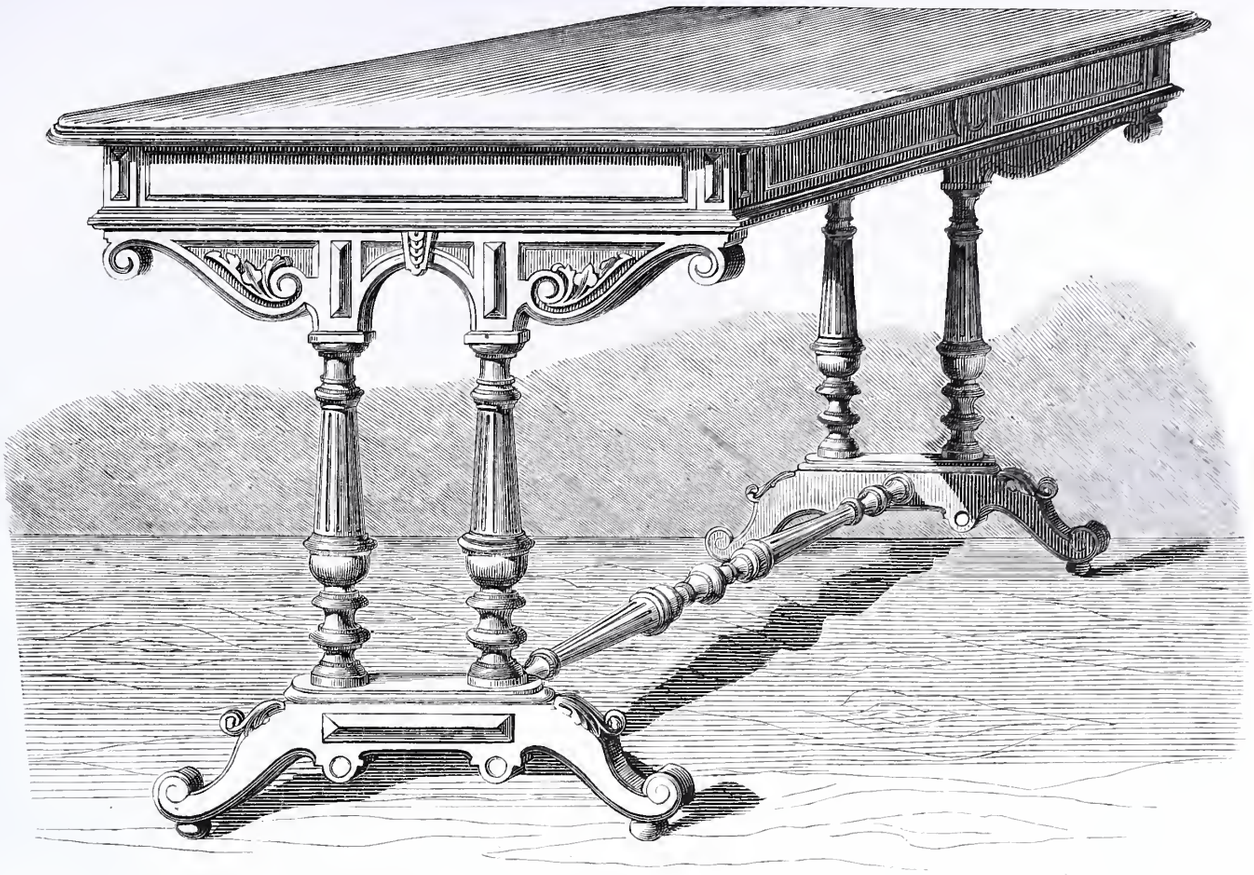


Nos. 14 and 15.

No. 14. Album Cover with Metal Mounts and Clasp. The design intended for inlaid leather, and being, with an appropriate change of dressed and undressed leather of different colors, of excellent and manifold effect, is produced by cutting the ornaments, with suitable instruments, out of two pieces of leather of different tints, previously mounted on paper, after which they are fitted together and affixed to the cover; outlines, ribs and veins of leaves are traced or stamped in delicate gold lines; the mountings, either cast, or hammered and chased, may be partly dead, partly highly polished.

No. 16.

No. 16. Oak Wardrobe, the door filled in with plate-glass; recent manufacture.
For details see Nos. 1 and 2 of Supplement.



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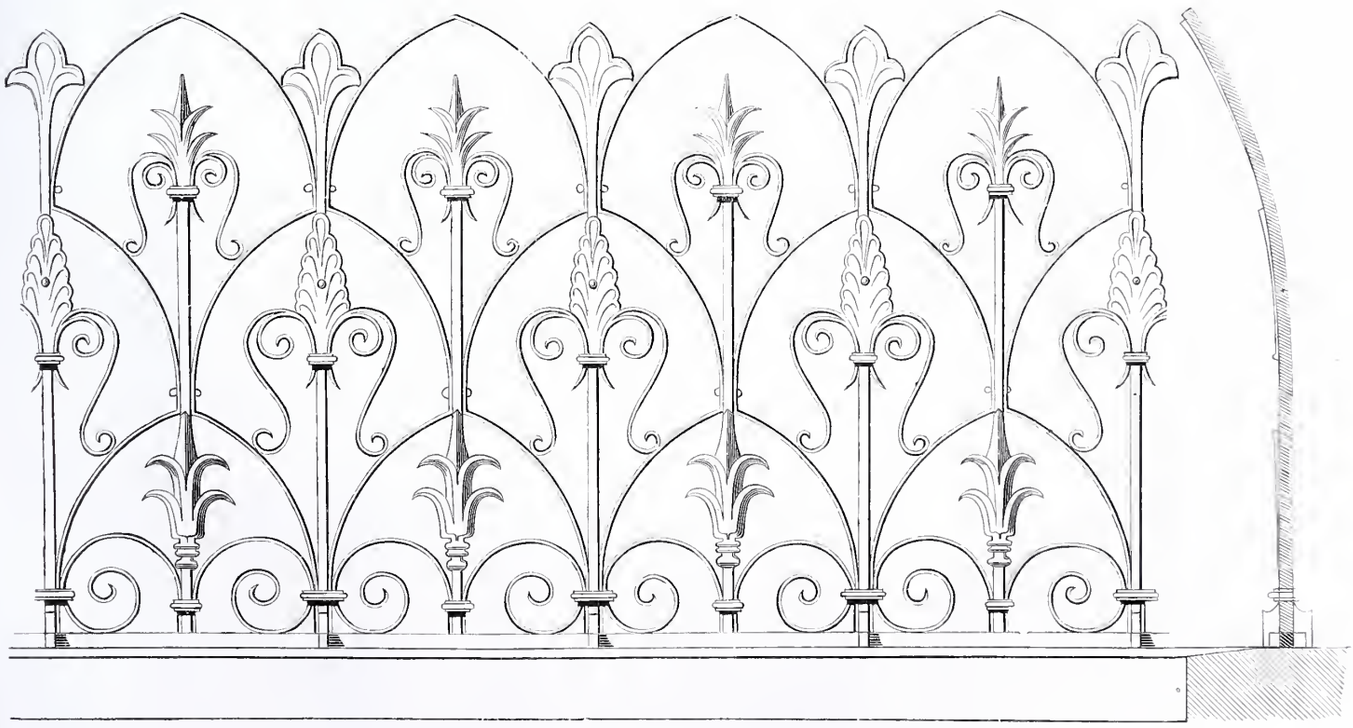
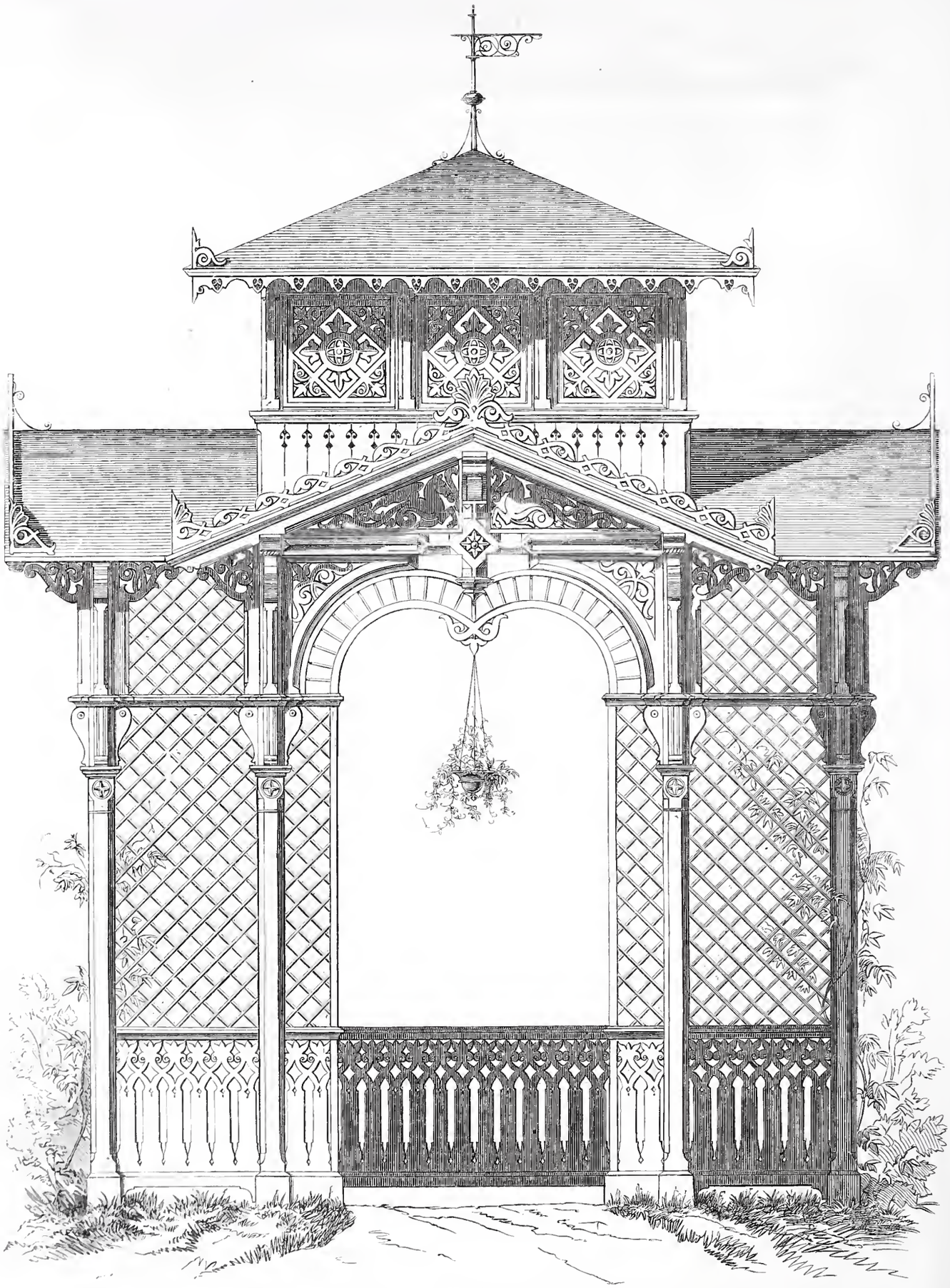


No. 18.

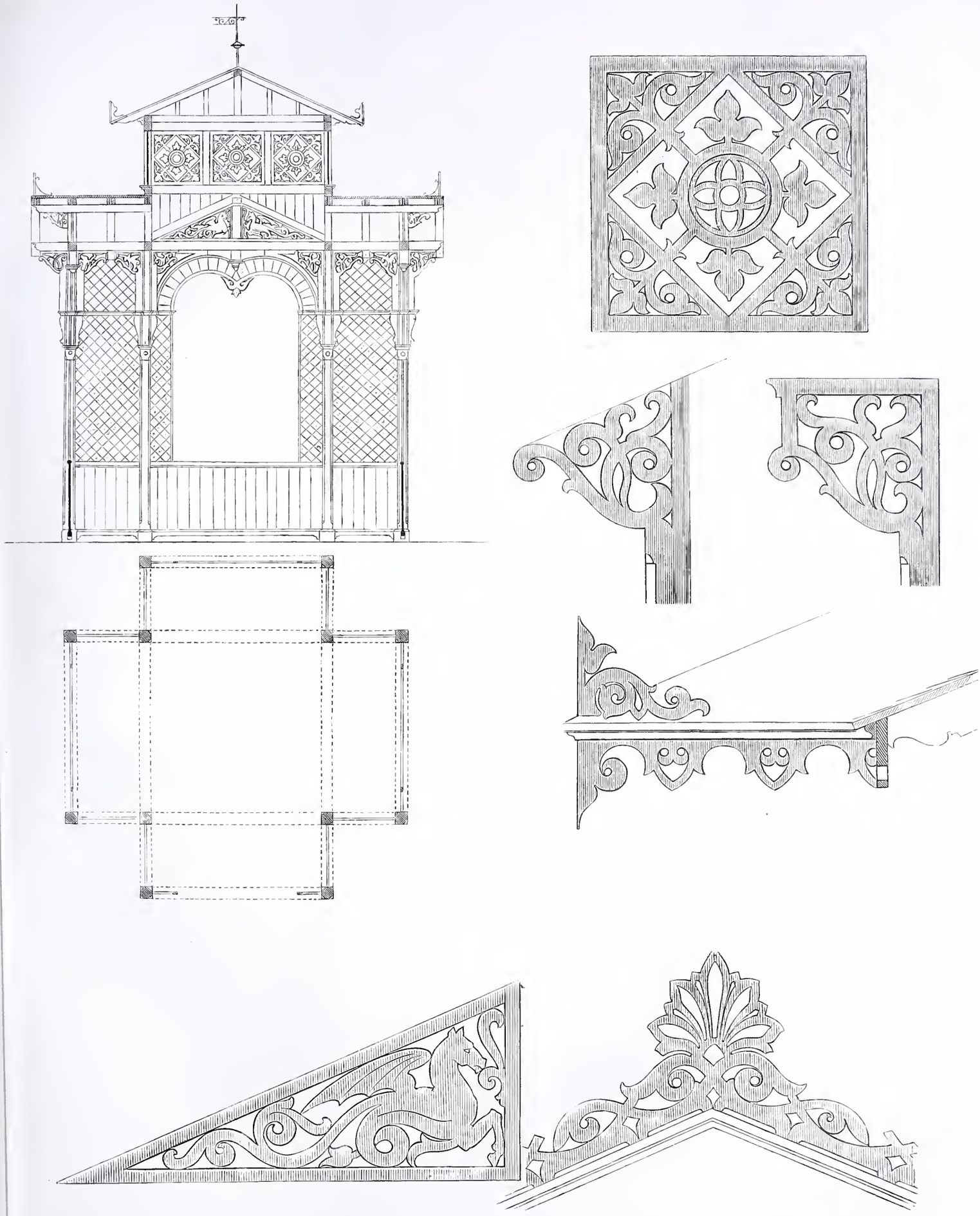
No. 17. Carved Oak Table. For details see No. 3 of Supplement.

No. 18. Wrought-iron Railings, from the Fountain of Square Louvois, Paris.



No. 19.

Nos. 19—27. Ornamental Summerhouse in Wood, with carvings and curvilinear sawings. Elevation $^1/_{24}$, section and plan $^1/_{48}$, details $^1/_8$ of real size. The ground-plan in form of a cross shows the entrance in front of one of the arms, the other three being intended for seats. The roof to be slated.



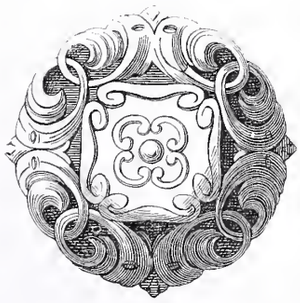
Nos. 20—27.

No. 28. No. 29.

Nos. 28 and 29. Fish-bowl and Fruit-stand in Crystal with Bronze mountings; 1/3 of real size.

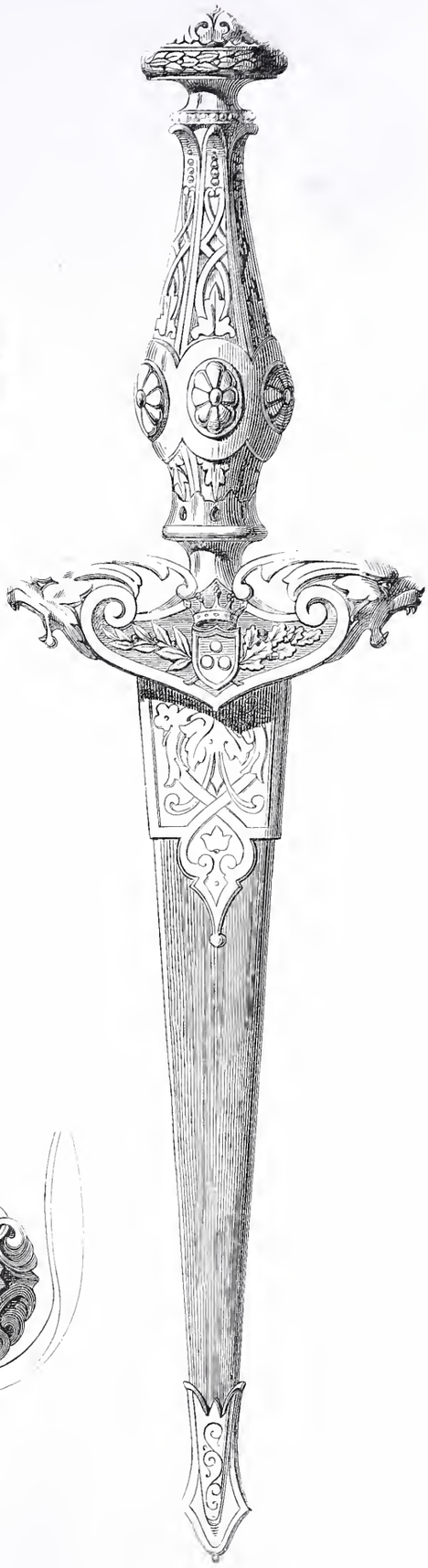
No. 30.

No. 31.



No. 33.

No. 32.



No. 34.

Nos. 30—33. Sword-hilt chiselled in iron; full-size. Seventeenth-century work. From the Vienna museum.

No. 34. Dagger with Hilt and Scabbard; for execution in gold, silver or oxydised bronze.

VARIOUS.

Glyphography.

Having recently made trial of the process of glyphography in connection with the reproduction of engraved plates from photographs, and having obtained a considerable measure of success, we shall describe the process, if not in complete detail, at least so minutely as to enable any of our readers to practice engraving by the process in question with a fair degree of success.

A polished plate of copper, such as is usually employed by engravers, is blackened by being washed over with sulphide of potassium, sulphide of ammonium, chloride of platinum, or other means. The plate is then washed and dried, and is evenly coated with a mixture of wax, resin, and sulphate of lead, the thickness of the coating not exceeding a thirthieth of an inch. This coating is white and smooth, and the plate when thus prepared is ready for being sketched upon, or, as was the case in our trials, for being photographed upon. The details of our method of effecting the photographic part of the operation shall form the subject of another communication.

On the figure thus photographed or traced by pencil, the artist proceeds to make his drawing with little tools like needle points, fixed in wooden handles. These tools should vary in size, or rather in the thickness of the point, according to the nature of the work intended to be accomplished.

It will be found most advantageous to use tools one side of which has been filed flat, and a curve given to them near the point by bending them while heated in the flame of the gas. Every touch or stroke of the artist should penetrate through the waxy varnish to the surface of the plate, which, being black, reveals every touch — the work thus appearing black on a white ground, in the same manner as if it were effected by pen and ink on white paper.

The coarseness or heaviness of the lines depends upon the tool by which they are cut; hence broad lines require a tool flattened at the point like a chisel. The drawing must be made as in nature, or non-reversed.

When the picture is examined and found to be right, it is dusted over with plumbago, which by means of a bushy camel's-hair pencil, is distributed through every line and over every part of the surface.

Although we find that other conducting substances, such as bronze powders, act better than plumbago, we have very beautiful pictures produced by Mr. Palmer, in which the coating is the same as that here described.

The plate thus prepared is immersed in an electrotype cell, and a thin tissue of copper is deposited on it by the battery. When the plate has been immersed at night, we find in the morning that the deposit of copper is sufficiently thick to allow of its being removed.

The battery we use is Smee's and the depositing solution is the sulphate of copper, rendered decidedly acid with sulphuric acid.

The cast thus obtained must be backed up with soft metal, sec. art., and in this state it will, if printed from as a wood engraving, yield an exact fac-simile of the original drawing.

If it be required to lower broad masses of white, this can be effected in one or other of the following ways:

After the drawing has been finished, and before it is brushed with black lead, paint over the broad masses of white with melted wax, and let the thickness of the mass thus painted on the surface be determined by the area of the white portion, care being taken not to approach too closely to the lines of the drawing. This having been done, proceed with the plumbago as already directed.

Another way by which to lower the broad whites is to take a cast in plaster of Paris from the original plate, and in this cast to lower any part required by means of a suitable gouge-shaped tool. From the plaster block thus trimmed may be obtained by means of recasting in plaster and stereotyping, any number of metal blocks in a condition ready for printing.

We have in our possession some pictures which have been obtained from surface blocks prepared nearly as described, and which are so fine and delicate as to warrant any person unacquainted with the method of their production in believing that they were printed from engraved copper or steel plates.

British Journal of Photography.

Oxyhydrogen Light.

The experiments commenced last year on the Place de l'Hôtel de Ville, in Paris, on the oxyhydrogen light, are about to be continued, by order of the Emperor, in the court of the Tuileries.

The magnesia cylinders having been found to corrode and waste away too rapidly for the purposes of a continuous light, an artillery officer, M. Caron, after experimenting with a variety of substances, has adopted zircon, a substance which Berzelius pointed out as infusible, and giving forth a very brilliant light under the blowpipe. It is said that M. Caron has had a cylinder of this substance in use with the oxyhydrogen light for a month without the slightest trace of volatilization. The luminous power of zircon, under the oxyhydrogen jet, is about one fifth more than that of magnesia. The zircon employed is an oxyde of zirconium; it is found principally near Miask, at the foot of the Ural mountains. M. Caron economises the zircon, by mounting a point of it on a small stick of magnesia or fire-clay, the zircon being made to adhere by compression and afterwards baking.

Journal of the Society of Arts.

Iron Stoves.

Some of the French doctors have started a fresh crusade against iron stoves. Dr. Carret, at Chambery, noticed a great deal of unaccountable disease in schools and institutions; and thought he could trace the mischief to the introduction of cast-iron stoves. Dr. Deville, in a paper read before the Academy in Paris, says that he proved by a mechanical contrivance that such stoves do give off noxious vapours. He had two bells so connected with electrical apparatus that they should ring when hydrogen or carbonic oxide was given off. Not long after the stove had got thoroughly heated both the bells began to ring. If it is proved that iron heated beyond a certain point gives off unwholesome gases, we had far better adopt the German stove, so much more capable, by the way, of being made a graceful piece of furniture, than our cast-iron abominations. Such a reform would naturally lead to the disuse of the wretched frontage of painfully black-leaded iron round our fireplaces, and a return to the good old Dutch tiles.

Imperial Review.

Effectual Method of Cleaning Glass.

In order to clean glass, and restore its former brightness and transparency, should the usual treatment have proved insufficient, take a little fluoric acid of commerce, dilute it with 4 or 5 times its volume of water, pour a few drops of the diluted acid on a small pad of cotton wool, rub therewith the surface of the glass and then wash it off with water. By this method a thin layer is dissolved on the face of the glass, thereby uncovering a new surface. If a more concentrated solution of fluoric acid is allowed to rest sometime on the glass a concave surface of high brilliancy is thereby produced.

The Workshop.
A Monthly Journal, devoted to Progress of the Useful Arts
EDITED BY
PROF. W. BAUMER, I. SCHNORR AND OTHERS.
VOL. I. No. 9

On Italian Renaissance in its Relations to Architecture and the Industrial Arts.

An equally beautiful style of treatment is illustrated by another, though somewhat later group of buildings, richly ornamented by decoration in Sgrafitti (in a still later period superseded by painting), their most marked peculiarity being an open, flat-roofed colonnade under the cornice, a very charming and artistic arrangement, giving even to smaller buildings a palatial appearance. The same characteristic feature of colonnades or ranges of arcades, superimposed one on another, sometimes through three stories, is further worked out and perfected in all the great courts of palaces and cloisters. The earliest examples are again Brunelleschi's beautiful, cloistered courts; of very simple but noble conception, they produce the highest artistic effect by the purity and beauty of proportion, and the great elegance and lively play of architectural forms and lines. Bramante very ingeniously introduced beautifully designed pillars in these courts. The columns, never fluted, are adorned with ever-varying capitals of graceful luxuriousness, the walls and vaulting of the peristyle always richly painted with frescoes and arabesque work, the architectural mouldings being sometimes also relieved and marked by coloring.

Reviewing the decorative styles of the Renaissance, we are at first dazzled by the exuberance of genius displayed after the short and uncongenial reign of Gothic Art, an importation from the North, which had never thoroughly taken root in the South. Then indeed, enamoured by the masterworks of antiquity, by the view of its priceless remains, daily excavated and exhibited, a profusion of new and original creations of decorative art sprang up, which now only, after the lapse of centuries, can be fully appreciated. Grand, old, Classical Art, having for more than five hundred years continually exercised her creative power, had stored up and transmitted to posterity innumerable treasures.

Indeed what an astonishing richness of graceful motives do we see, if we cast our eye on the capitals of the columns removed into the Roman basilicas from the Ancient temples which they used to grace, on their monuments, altars, fragments of doorways, friezes, and cornices, which are still extant. The Renaissance laid hold on all this, adding her own powerful genius, and entering with the same fire and energy into the imperishable beauties of nature.

No wonder therefore that we find during this period all the forms of ornamentation combined which the human mind is able to embrace; above all the architectural structures show great dignity and repose, being the results of a judicious and keen understanding, which laid the decorative features principally round doorways, windows, and in those mighty vaults and domes, enriched with deep coffers and boldly carved flowers, which in the blended and broken light produce a most mysterious and magnificent impression on the mind.

Amongst the most beautiful examples of their kind must be mentioned the Porch of Pazzi-Chapel, erected by Brunelleschi, or that of the Pietro Massimi Palace at Rome by Baldassare Peruzzi. This porch, supported on the outside by simple Tuscan columns, recedes from the sombre, rusticated façade, the interior being covered by a flat, richly coffered ceiling, further enriched with niches, elegant stone seats, and a beautiful doorway.

If we examine the capitals, mouldings, archivolts etc. we find there a rich, but judiciously distributed ornamentation of exquisite finish and workmanship in its most minute details, richly carved mouldings, flowers, dentils, frets, lions'-heads etc. giving charm, brilliancy and life to the whole. The doorways especially belong to the most splendid productions of that period; the ornamental parts are either deeply sunk, or entirely subordinated to the architectural framework, and display a luxuriant richness of vegetable types, represented by a multitude of natural plants arranged in scrolls or bunches, and animated by birds, butterflies, lizards, etc., while some artists introduced into their arabesque work Classical conventionalised foliage, combined with arms, trophies, genii, tragic and comic masks, hybrid marine monsters, and chimeras.

These doorways, in most cases formerly painted and gilt, prepare the mind for an introduction into the Renaissance sanctuary. The whole interior, as is the case in Antique and Mediæval buildings, is of course

resplendant of dazzling colors and gold; but in opposition to the elements of Gothic styles, in which Architecture is preeminently dominant, the Sister Arts, Painting and Sculpture, are allowed free scope at the side of Architecture, although all three are intimately associated, thus producing a most wonderful and harmonious effect. But then all the decorative features, vaults, monuments, altars, notwithstanding the most elaborate finish and richness of detail, exhibit a grand and noble sobriety of arrangement. Unfortunately only very few of these interiors have preserved their entire original decoration, and where they have, they are generally only smaller constructions as, e. g., the Mausoleum of the Cardinal of Portugal (ob. 1459) erected by Antonio Rosellino on the northern aisle of S. Miniato al Monte, near Florence.

What a profusion of choice and costly materals is here! the Florentine sandstone or Macigno, white and colored marble, gilding, frescoes, terra-cottas, splendid mosaics for the pavement, of more delicate design for the ceiling, everything most skilfully combined to produce a structure which, with all its exuberant richness, and splendour of ornamentation, displays great chasteness and elegance of form. In the vault of that very chapel, forming a small cupola on pendentives, we behold a beautiful example of decorative art; the calotte is formed by five large plates, or tiles of baked, enamelled clay, with beautiful, floating figures of angels, the little spandrils filled in with gold mosaics, the soffits of the four arches, and the frieze of the entablature being adorned with exquisite fresco-paintings, all this relieved by ornamental and statuary sculpture work, leads on to the marble monument, where the corpse of the departed, as if in deep slumber, is extended on a rich sarcophagus. Certainly great artistic skill and refinement is required to create a work of like signification. Here all the leading features are in themselves master-pieces of their kind, which combine to build up a work of Art of great magnificence, harmony, and perfection of form, the smallest details of mouldings or arabesque work showing the same refined sense for the effect of form, color and light, displayed in the most exquisite frescoes and marble statues which grow out of the architectural groundwork.

Especially the numerous sepulchral monuments of the Renaissance period, consisting of marble structures, often mere slabs, and always fixed in, or projecting from the wall, show most exquisite arabesque work, which owes its graceful elegance, besides the charm of invention, to the delicate modelling of the surface in flowing designs of foliage, stems and flowers. Delicate tendrils, encircling here a little bud, there an expanding flower, suddenly rise with sharp upright edges from the ground; elegantly shaped leaves and branches, growing out of the parent stem, and appearing like slight undulations of the surface, are wrought with knobs of enrichment in bold relief, all different in design, and worked from natural types.

Only a faint and pale glitter remains now of the greatest achievements of the Decorative Art of the Renaissance, of that grand association of Architecture, Sculpture and Painting; — as, e. g., in Raphael's Loggie of the Vatican, and in Villa Madama near Rome; — which is suggested by the Antique treatment of interior decoration, especially by the Baths of Titus, then a favourite object of study. Here indeed great perfection of form and harmony of color pervades the whole, the first principle being to mark the great masses of vaults and walls. Over their surface, in marvellous brightness of light and color, in all the fascinating brilliancy of life, are spread a profusion of natural foliage, wreaths of flowers, and fruit, interspersed with masks, dancing amorini, demons, fabulous monsters and animals, charming landscape, mythological subjects of every kind, following and interlacing each other, and framing, sometimes painted, sometimes executed in white, gilt, or colored stucco, those great pictures on religious subjects which fill the centres of vaults and ceilings. And no less a person than Raphael Sanzio planned these creations; in his Court of the Loggie he displays in a small space the inexhaustible force of vegetable and animal nature, contributing to a work of faultless harmony and gentle elegance.

When, in a later period, the decorative ornament was made less fine and appropiate, a want of breadth and repose pervaded the whole. The old Classical specimens also, so far as preserved, exhibit the same exquisite treatment and wonderful richness of imagination. The brilliant effect of the relief ornament in stucco is further heightened by the peculiarity of the material, which allows the artist to add his work of taste and fancy, by rendering immediately his most delicate impressions in a soft and plastic mass. Indeed we find here everywhere the stamp of originality, only the main features being designed beforehand; and for the rest, free scope is given to the artistic genius, so that an individuality and freshness of thought speak to our mind in even the smallest of these creations.

We can have no exact representation of the productions of Art-Industry during this period, much of the Italian Cinque-cento work being lost, or hidden in the interior of houses. But, it is unquestionable that Art had attained a degree of perfection, superior to that of the old Classical, at least of the Ancient Roman style. The most remarkable of these productions in terra-cotta, wood, and metal-work rank amongst the noblest conceptions of high Art. In other words, Italian Cinque-cento work leads through all the forms of decorative ornament, of the purely conventional, or vegetable, and animal types, to the form *«par excellence»*, viz., the representation of the human; a noble tendency discernible even in works of an unpretentious and modest character, when such men as Giotto, Orcagna, Brunelleschi, Ghiberti, Alberti, da Vinci, Raphael, Michael-Angelo and others contribute to their production. Thus the great sculptor Luca della Robbia appears at Florence about the same time as Brunelleschi, establishing the manufacture of glazed earthenware. He furnishes Brunelleschi the enamelled tiles for the splendid cupola over the porch of Pazzi Chapel (about 1420); he produces the beautiful frieze medallions in that chapel, and complete altars, besides a series of pictures of the holy Virgin, generally framed by luxuriant wreaths of fruit, and flowers. The colors are simply yellow, green, blue,

violet and white, the glazing exceedingly thin, the ground of the relievi being a light smalte blue. His invention, handed down from nephews to grandnephews, was practised with the same high perfection till 1527 when the last of the Robbias died of the plague, after having filled the churches and villas of Tuscany with their modest but unsurpassed productions. It is remarkable how all these little gems, although made by hand, and always showing the same ideas and forms, are nevertheless marked by originality of design, and novelty of invention, being the true expression of the artistic genius of that period.

Suggested by the Della Robbia ware, there arose at the beginning of the 16th century the manufacture of majolica, principally practised in Pesaro, Castel-Durante and Faenza, and showing also the same colors. The best of these productions, chiefly consisting of great, flat dishes, fruit stands, saltcellars etc., show no figures, but very elegant arabesque work, though sparingly used, sometimes painted, sometimes in low relief. Pictorial subjects of high artistic value are also frequently represented from designs of Raphael, Guilio Romano etc. All these specimens, combining truth with beauty of form, do not pretend to be more than what they really are, viz., vessels which perfectly answer their purpose.

Except a number of most magnificent candelabra not much remains now of the art of the metal worker of that period, and hardly anything of those gold and silver objects which Benvenuto Cellini praises so highly. A few relics that are left, a saltcellar, a few candlesticks in the treasury of St. Peter's, a little chiselled steelkey in the possession of the Strozzi family justify, no doubt, the enthusiastic terms which the artist himself lavishes upon them. The severe forms are replaced by flowing lines, gracefully curved; the flat surface, enriched by masks, foliage, and renderings of animal types of great daring and energy, is relieved by little panels, with most exquisite bassi-relievi; everything worked with great care and high finish, like the works of nature, loses nothing when seen under the magnifying glass. In this later period there appear also vessels of hard and costly stone and cut crystal, foot, handle, neck and top, enriched with enamels in gold and precious stones, which are, without disturbing the graceful contours, in perfect harmony with the natural color of the material. Of great magnificence are also the steel armours and helmets, damascened or inlaid in gold or silver, with rich surface ornamentation, and sometimes of delicate relief, which exercise an unmistakable influence on stone arabesques and other architectural ornament of later date.

Mosaic work, although of very ancient origin, was then extensively practised, representing in inlaid wood, until the end of the last century, the principal enrichment of our furniture. This branch of art demands great refinement of taste and excellence of workmanship, but it furnishes a very appropriate and beautiful decoration of the flat surface, forming a very interesting contrast with relief ornament.

At the beginning of the fourteenth century the *intarsia* or marquetry work appears in Siena and Umbria, and in the year 1478 Florence possesses as many as eighty-four *intarsiatori* and other cabinet makers. Again it is the great Brunelleschi to whom the development of this art is ascribed. The decorative types are of great variety, embracing frets and lineal ornament, beautiful natural flowers, bouquets, birds, and human figures, boys holding festoons etc.; of frequent occurence also, especially for choir stalls, is the inlay of those perspective views which form the favourite subjects for the backgrounds of the Cinque-cento pictures.

The ordinary furniture, viz., bedsteads, chests, benches, etc., mostly of pear and chestnut, were of strong and massive construction, enriched with ornament in bold relief, and exhibiting high monumental dignity, combined with great simplicity of design; but between these severe forms, there appears always the bright and joyous play of inlaid and colored wood. Of most monumental appearance were especially the beds of state, projecting from the middle of the wall, and the chests which were sometimes manufactured by the most renowned masters; which pieces of furniture were usually ornamented with paintings. A room of this epoch, of a preeminently quiet and comfortable aspect, may be described as follows. The floor was covered with soft carpets; the flat, wooden ceiling, handsomely carved, showing coffers or compartments, with paintings and gilt floral ornament; the walls, covered with gorgeous tapestry, woven fabrics, silk hangings, embossed and gilt leather, or rich wainscoting, were furnished with bedsteads, chests, cabinets, and other furniture which was enriched by marquetry, coloring and gilding, especially strings and cornices; and on rich dressers a show of magnificent vessels of alabaster, porphyry, serpentine, and majolica.

Such was the interior of the mansion. The outside showed wide-spread lawns and parks; the sloping ground, skilfully arranged in terraces with broad steps leading to the chief entrances, was enlivened by the merry play of cascades, whose noisy waters, descending from terrace-walls and parapets, were thrown from shell to shell, or spit out from marine monsters; little sideways led into fresh groves with high fountains, or into kiosks and casinos of airy construction, whose lofty vaults adorned with frescoes allowed the eye to rest in the far distance on the mountains, and on the blue sea; or they abutted in an exedra, or crescentformed theatre leaning against the slope, with arched cool grottoes receding into the mountain, and sparkling with shells and stone-mosaic. Dispersed amongst all this were picturesque groups of noble trees: the laurels, oaks, cypresses and pines spreading their dark, evergreen foliage over the grounds, in which, with a true appreciation of the beauties of nature, the principal roads and avenues were so directed as to lead on to the most beautiful sites of the lovely scenery.

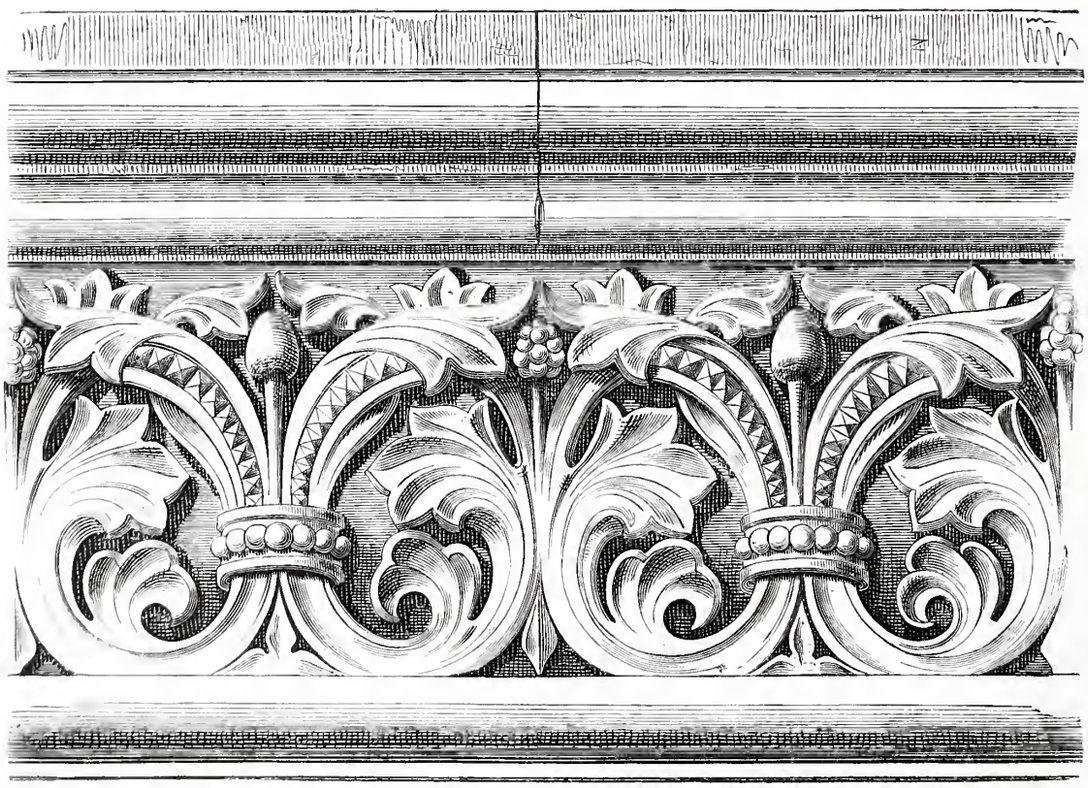
The days of the highest developement of Art were not destined to last beyond the taking of Rome in the year 1527. From that time a chilling torpor runs through all the architectural productions, and begins to sever Architecture from Decorative Art. The former confines itself more and more to its own sphere of rigid and conventional forms, the latter, given up to itself, indulges in most audacious and vulgar caprice; but reaction setting in, it borrows again from Architecture, introdu-

cing all sorts of distortions and contortions. The architectural structures lose in their turn their decorative ornament, the mouldings their enriched beads, pearls, egg and tongue ornament, etc. Losing the elegant sweep of profile, they are bent, broken, curved and twisted; columns, pillars and pilasters, no more surmounted by their ever-varying, charming capitals, are grouped into two, three or four. Yet a certain unity and harmony of style is still discernable, and the Rococo period also produces characteristic and ingenious structures which, although suggestive of their age of licentiousness, show, especially in the interior, grand spaces, largely designed, carefully and harmoniously arranged and decorated throughout.

Of great interest is the comparison of the gradual decay of the Renaissance with that of the Middle Ages. Mediæval Art, which in its most flourishing days pursued a similar course to the Renaissance, falls at last into the same errors as Rococo. The original, constructive signification of the architectural features is soon lost sight of, they become overcharged with ornament, and sink down to the rank of mere decorative vagaries. Thus it comes to pass that Gothic Art, striving after lightness, degenerates by degrees into forms of excessive thinness and poverty, while the Renaissance, based on Antique principles, assumes proportions of great massiveness and heaviness.

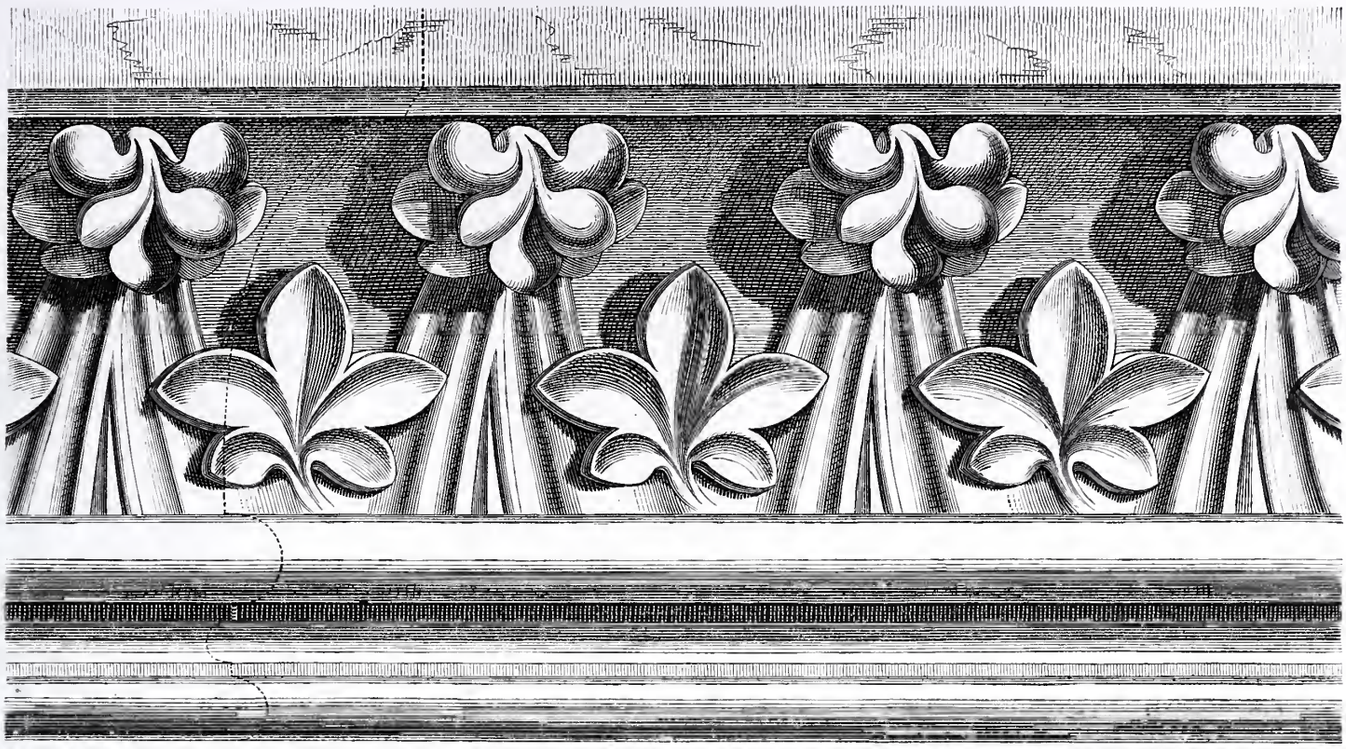
Only with the beginning of this century everything goes out of joint; the ancient hallowed traditions disappear, each follows his own way, or follows none at all; everything is to be done anew, and we are in the same position as if we had lost the power of speech. we are without *style.* Two things may save us. First an earnest study of early Italian Renaissance, which combines the excellence of former periods in Art; showing in its creations a noble simplicity, and manly vigour of style, it can, imbued with a new and fresh life, and prompted by a new and energetic spirit, be adapted to nearly all the modern wants and exigencies of private and public life. A second means may be sought in the restless activity and productiveness of modern Industry. Through the stupendous discoveries and inventions and the progress in technical science during this century. the process of manufacture, the treatment and the manipulation of the material, have entered into an entirely new phase; new thoughts and forms, never before entertained, are worked out and perfected, which, being merged into Architecture and Art industry. are thus brought to fruition.

Specimens of Ornamentation.



No. 1.

No. 1. Romanesque Style; Foliated Stringcourse from Bonn Cathedral.

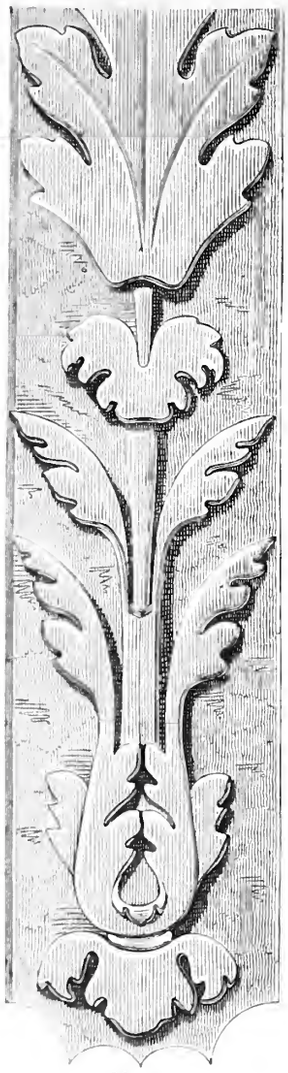


No. 2.

No. 3.

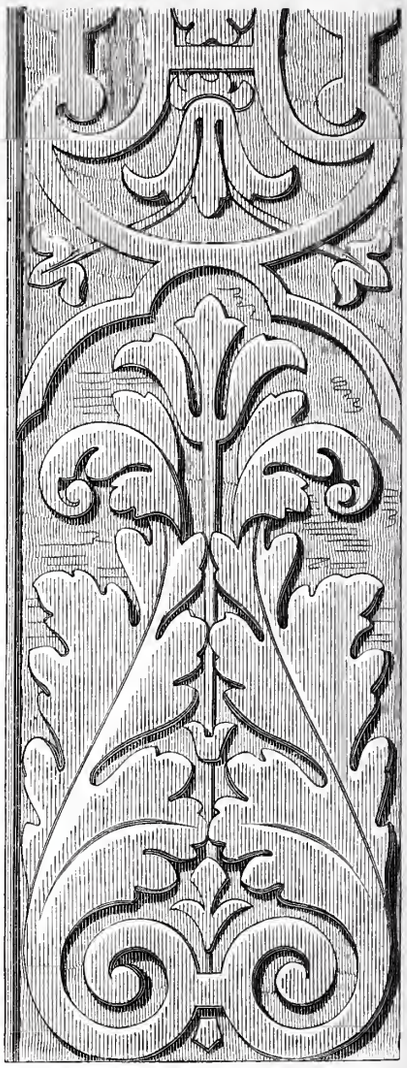
No. 2. Early Gothic; Detail of Lintel from Porch of Lower Church of the Sainte Chapelle, Paris.

No. 3. French Renaissance; Band of Foliage round Principal Doorway of Church of St. Etienne du Mont, Paris.



No. 4.

No. 6.



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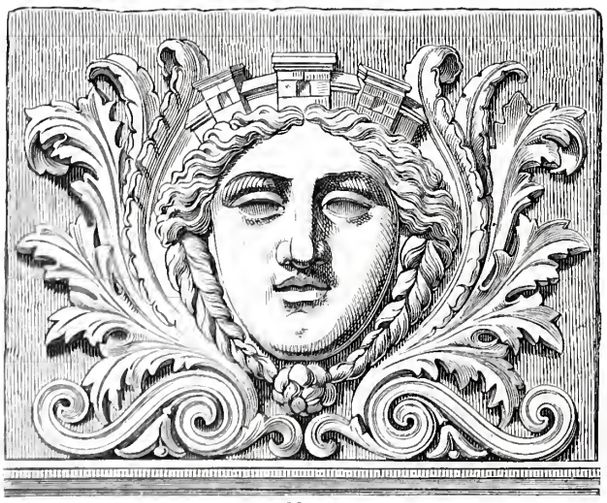


No. 7.

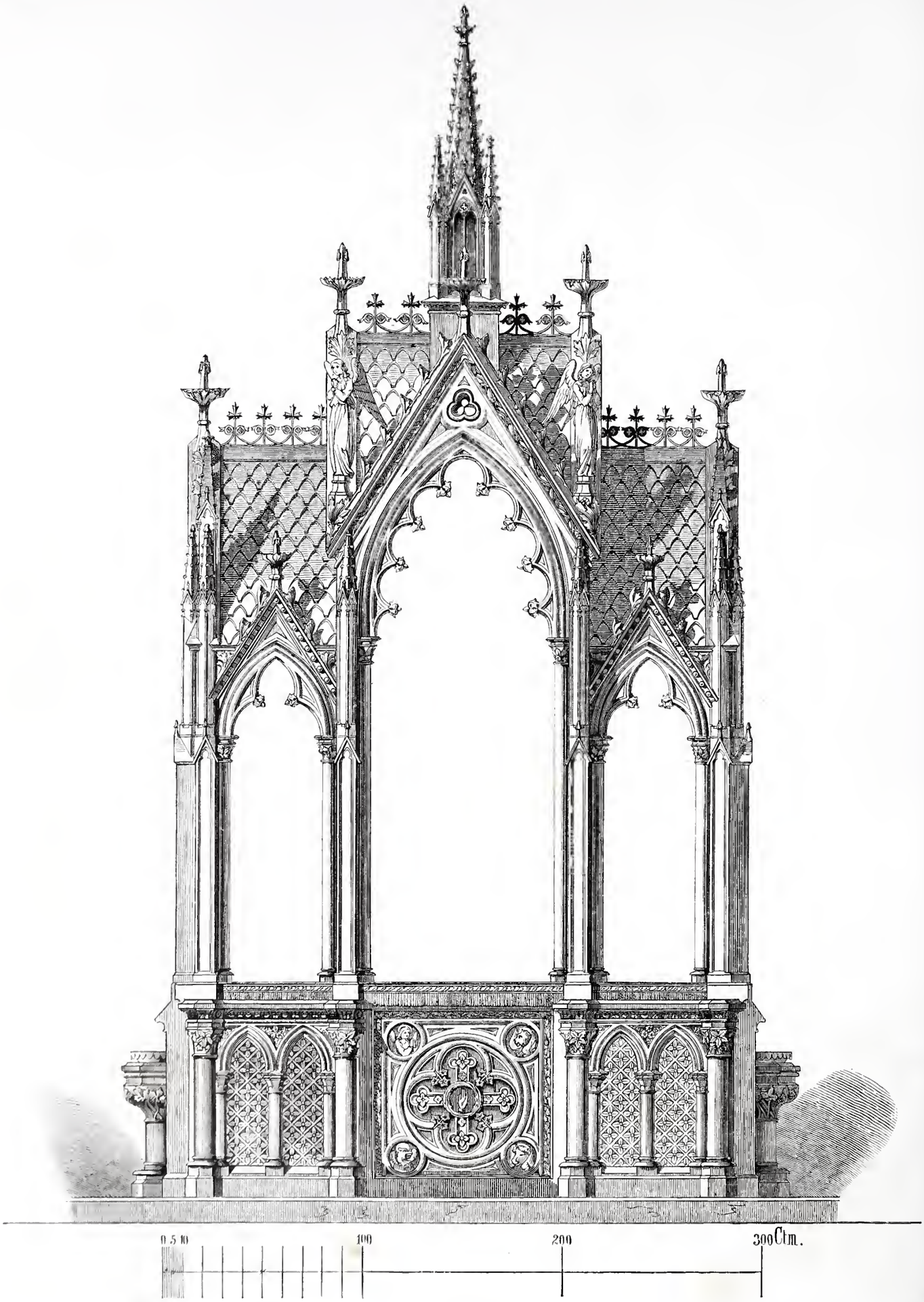
Nos. 4 and 5. French Renaissance; Portions of Panels from the Louvre, Paris.

No. 6. German Renaissance; Arabesque from Sepulchral Monument in Church at Comburg, near Hall, Würtemberg.

No. 7. Modern Panel Ornament.

No. 8.

No. 8. Pattern for Tapestry; executed in crimson silk damask, the design mat, on satin ground.



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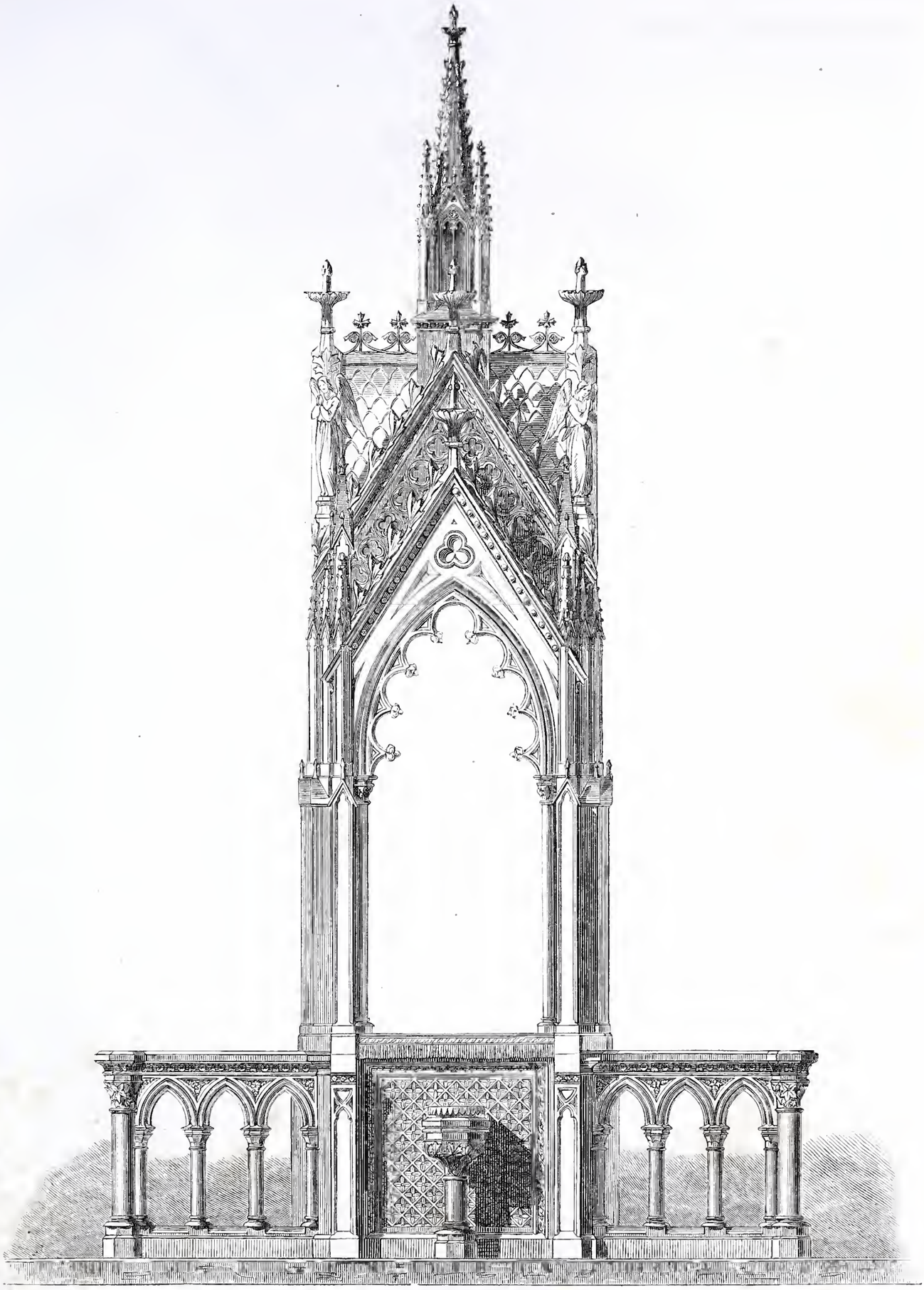


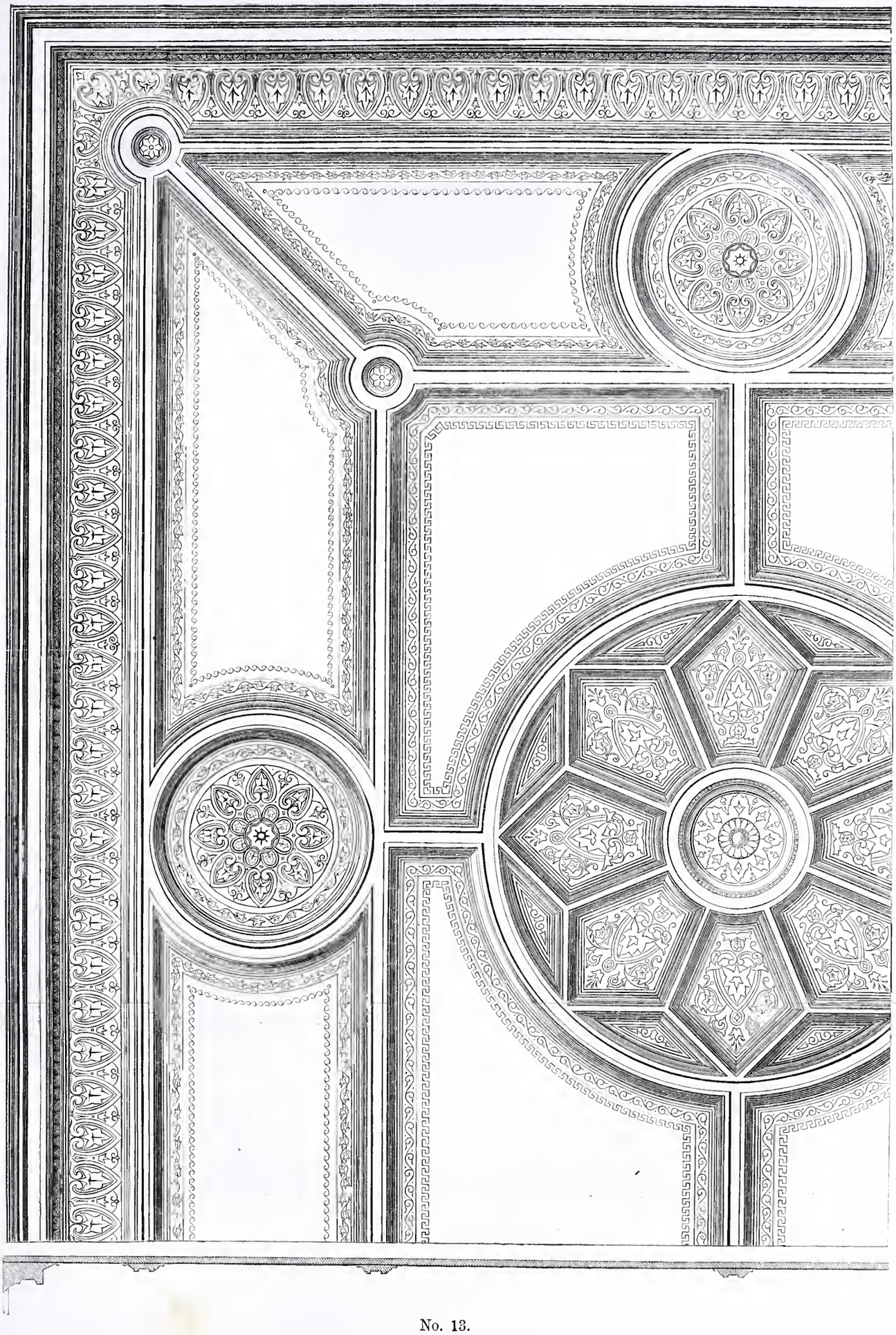
No. 10.

Nos. 9 and 10. Altar table with Ciborium for St. Mary's Church, Reutlingen, Würtemberg; Front and Side Elevation. For plan and section, 1/5 of real size, see Nos. 6—8 of Supplement. Competition design; Mr. K. Walther, Architect.

No. 11.

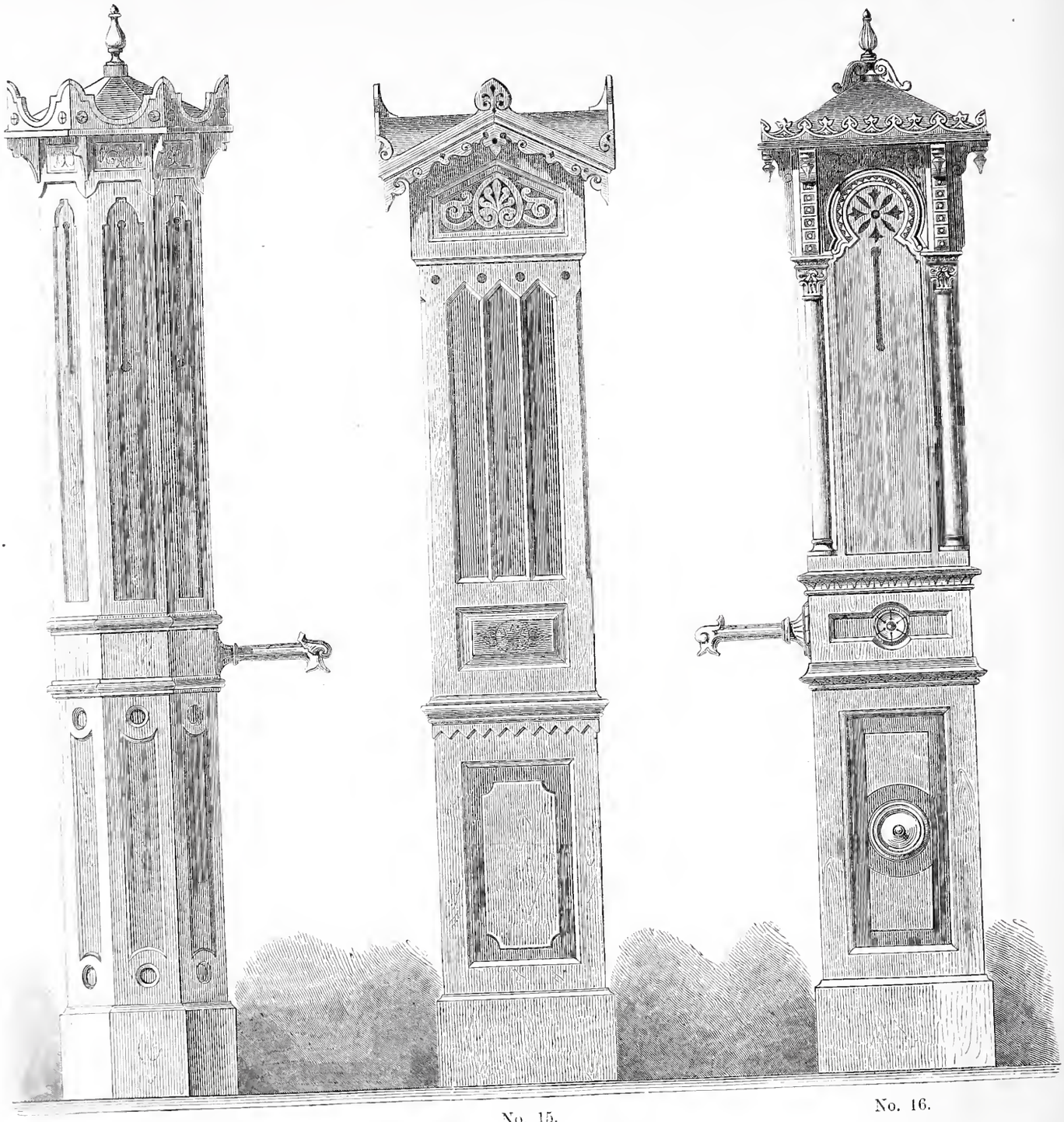
No. 12.

Nos. 11 and 12. Majolica Punch Bowl with Salver.



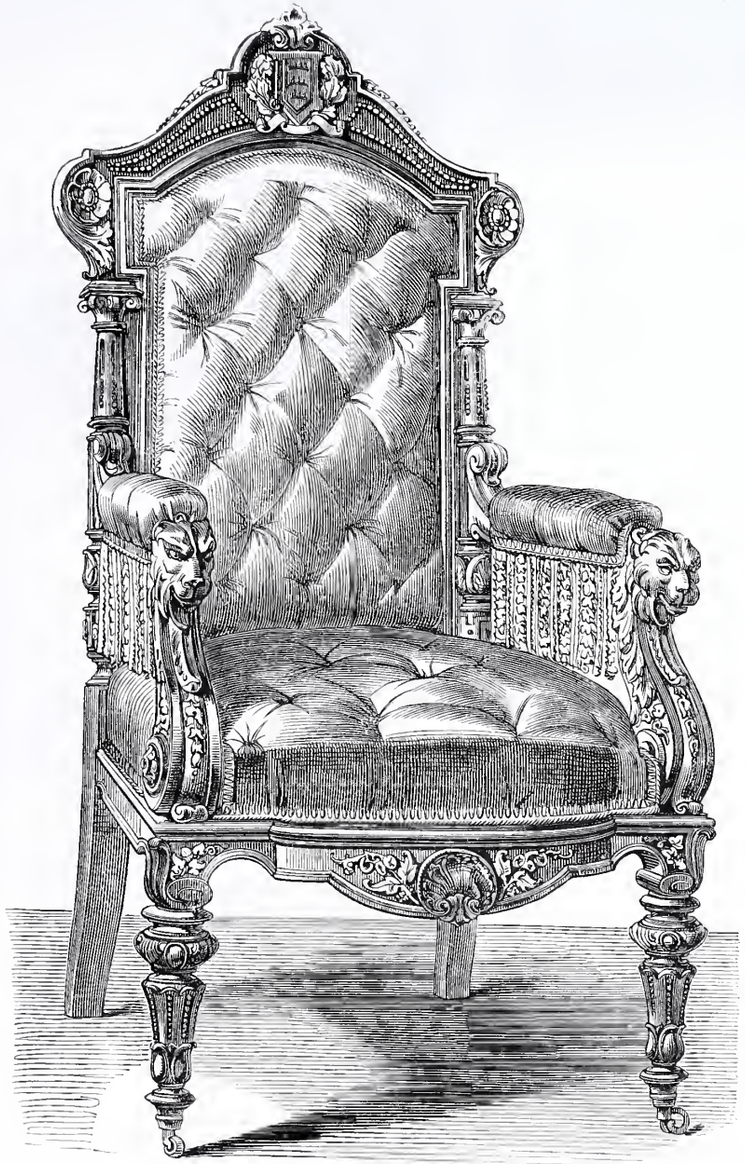
No. 13.

No. 13. Design of Modern Ceiling.

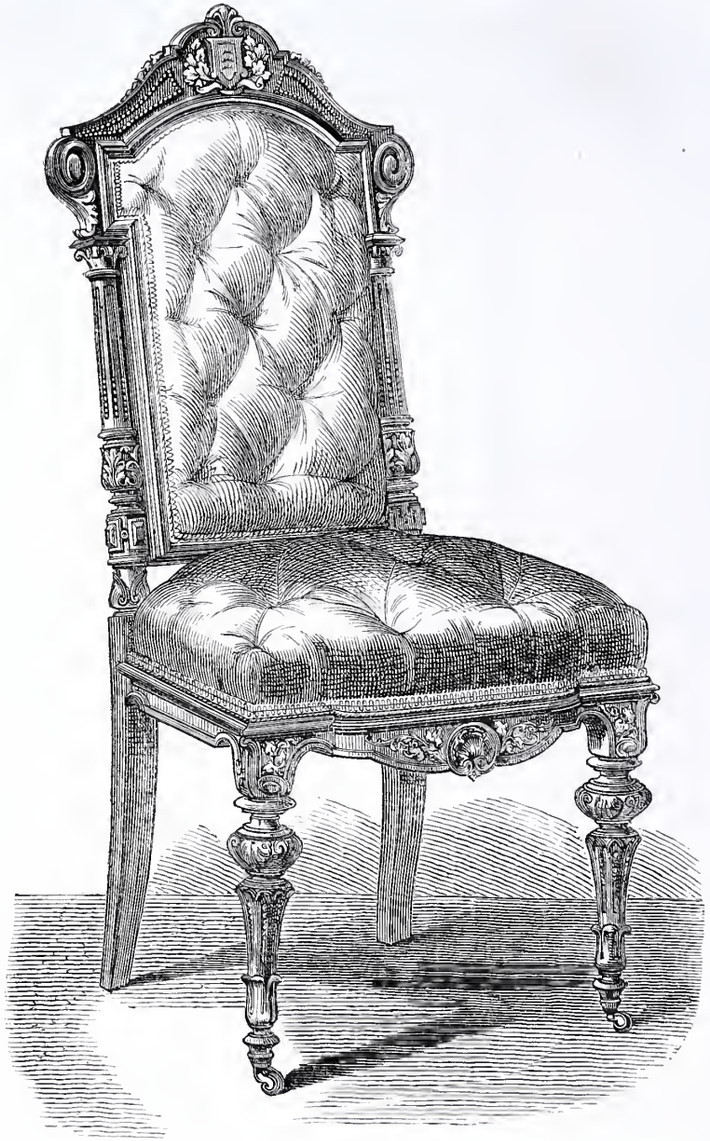


No. 14. No. 15. No. 16.

Nos. 14, 15 and 16. Woolen Cases for Pumps. For details of No. 16 see Nos. 9 and 10 of Supplement.

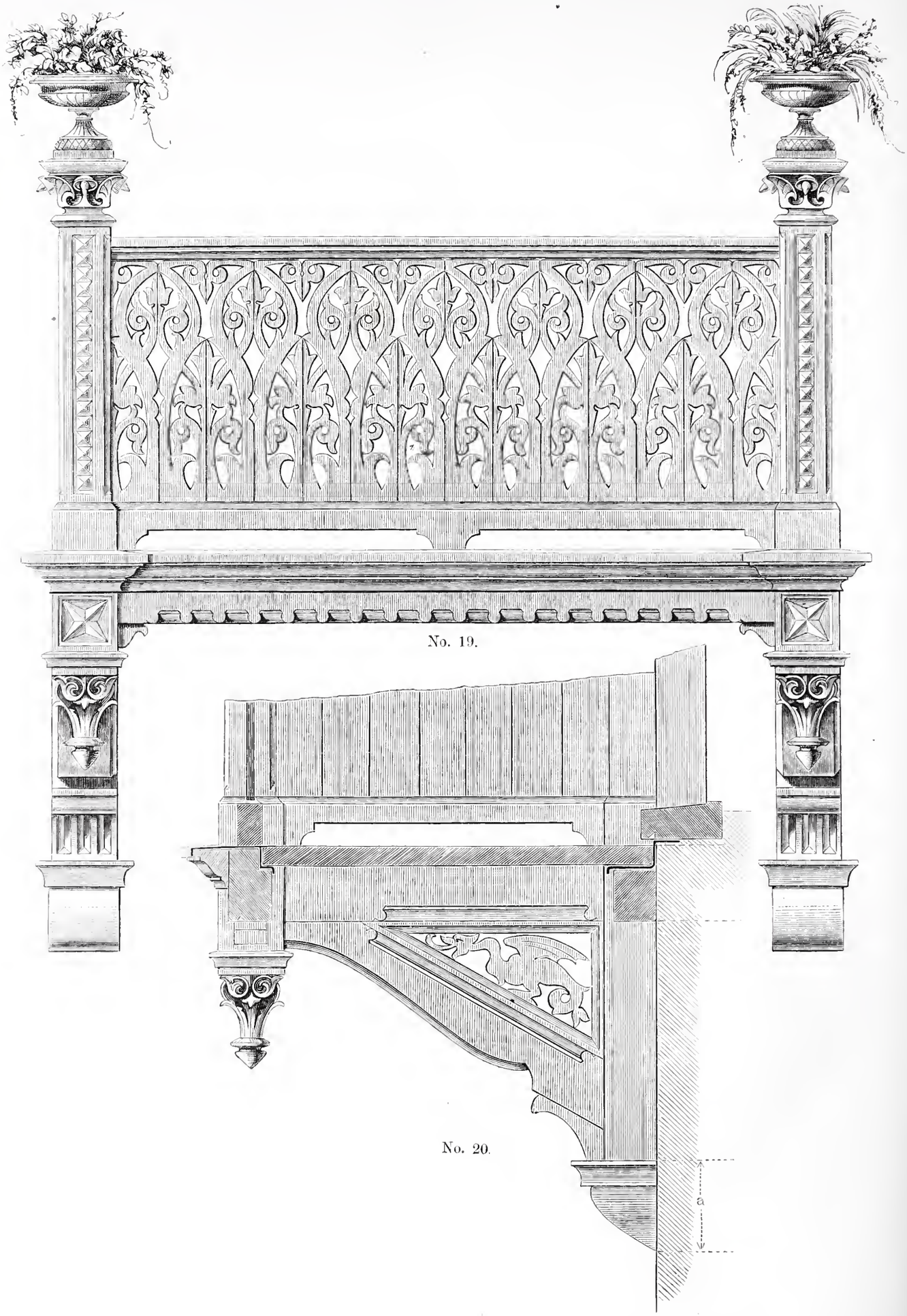


No. 17.



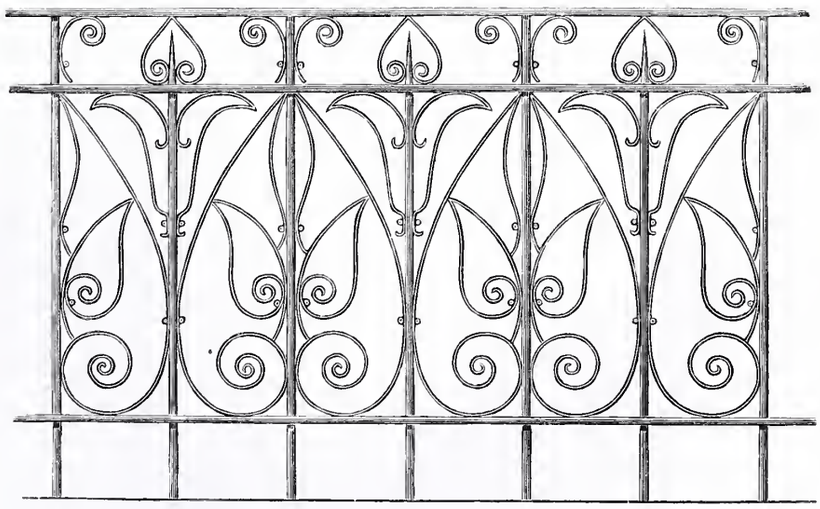
No. 18.

Nos. 17 and 18. Chair and Armchair, in stained pear, with bronze ornaments, and red damask coverings. For details see Nos. 1—3 of Supplement. The sofa belonging to this set of furniture will be given in Part 10.



Nos. 19 and 20. Balcony of carved and pierced Wood. Elevation and section 1/15 of real size.

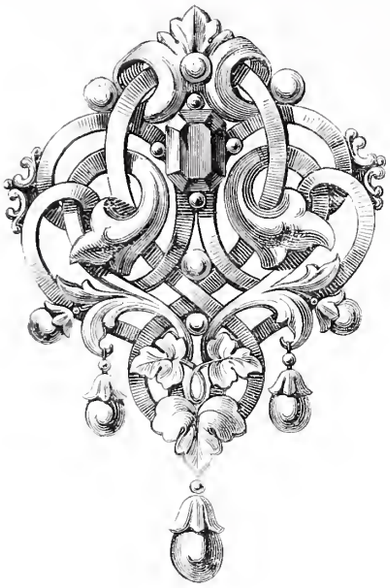
No. 21.



No. 22.

No. 21. Wrought-iron Gate.

No. 22 Wrought-iron Balcony Railing.



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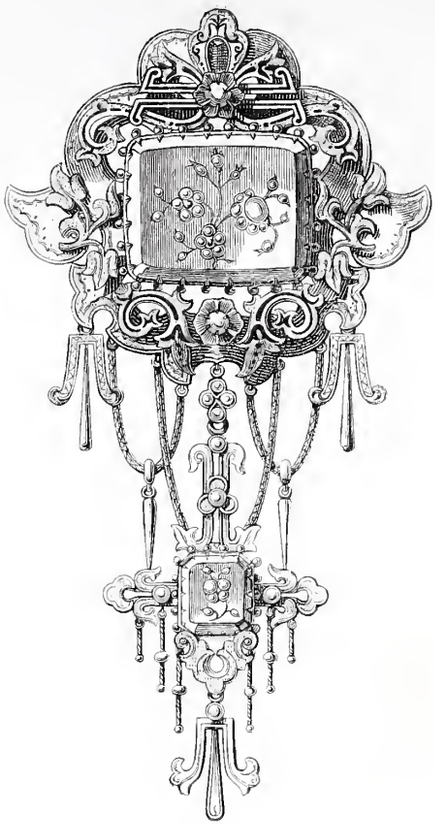


No. 24.

No. 25.

Nos. 23—25. Specimens of Modern Jewellery.

VARIOUS.

New Cement. — Liquid Glue.

Few things are in more constant demand among mechanics than cements, and it must be admitted that most of those in common use are open to improvement. We have recently met with some receipts in the French and German journals, which we put together for the information of our readers. The first is an iron cement, which looks likely to be useful. It is made by mixing from four to five parts of dry clay, two parts of iron filings, one part oxide of manganese, half a part of salt, and half a part of borax. When the cement is wanted for use this mixture is made with water into a paste, which is applied immediately to the pieces to be joined. It is then allowed to dry gradually, and is subsequently treated to whiteness. After this the cement will resist water and of course heat. Another, said by Stinde to be a very useful cement, is made by mixing equal parts of oxide of manganese and oxide of zinc, and making them into a thinnish paste with the solution of silicate of soda of commerce. This paste must be applied quickly, as, no doubt, it sets very rapidly. It is not calculated to resist heat and water — the latter, at all events, not for any length of time. Another receipt we find is for a strong liquid glue. To make this the inventor puts three parts of glue with eight parts of cold water, and lets them stand for several hours to soften the glue. He then adds half a part of muriatic acid and three-quarters of a part of sulphate of zinc, and heats the mixture to 185 deg. Fah. for ten or twelve hours. The mixture remains liquid after cooling, and is said to be very useful for sticking wood, crockery, and glass together.

Mechanics' Magazine.

Minargent.

This is the name given to a new substitute for silver, which is said to possess nine tenths of its whiteness, malleability, ductility, tenacity, sonorousness, and density, while it has a superior metallic lustre, wears better, is less likely to be acted upon by sulphur in its various forms, and is less fusible than silver. The chief features of this wonderful alloy consist in the introduction of pure tungsten and aluminum, also the considerable proportion of nickel which the inventors have been enabled to alloy with aluminum notwithstanding its known want of affinity therewith. Minargent is composed of 1,000 parts copper, 700 parts nickel, 50 parts tungsten, and 10 parts aluminum. The first three elements are melted together, then run off in a granulated form, and again melted, adding the aluminum and about 1½ per cent of a flux composed of one part borax and one part fluoride of calcium; these proportions of borax are reduced as the fusion proceeds.

Scientific American.

Marezzo Marble.

M. Guelton, concerned in the production of this material, is anxious it should be known that »the nature of the manufacture by which these marble imitations are produced, so far from being a simple result, represents the labour of many years' incessant study of the mineralogical formation of the finest marbles that have come under his observation«.

The Workshop.

A Monthly Journal, devoted to Progress of the Useful Arts

EDITED BY

PROF. W. BAUMER, I. SCHNORR AND OTHERS.

VOL. I. No. 10.

CRYSTAL MANUFACTURE AND JEWELLERY.

Among the valuable bequests of grand old Classical Art which must ever remain the objects of most serious study to the Art-worker of all times as models of unsurpassed beauty, the vessels of Ancient Greece, Rome and Etruria are pre-eminently attractive by their great richness and purity. For the creations of these classical periods in Art, vanished alas! long ago, are distinguished by the greatest perfection of form as well as truthfulness of expression, realized by the simplest means and executed in the plainest material. Indeed in the still extant remains of these epochs, and principally in antique vessels, the ornament is usually very scantily distributed, and never appears as mere outward show or offshoot of caprice, but is closely associated with the artistic conception and structure of the work, as the necessary result of its purpose, and the natural outflow of an innate æsthetic sentiment.

These forms must however be nothing more than motives for suggestion to the modern manufacturer; for here, as in all branches of art, mere servile imitation is highly objectionable and undignified; especially must great caution be urgently insisted upon, when form is to be given to the original conception in a new material. Moreover, a great gap which unfortunately it is now impossible to fill up exists with regard to the various works of Antiquity in those branches of the Useful Arts to which we devote the present article. Thoroughly as we are acquainted with the Ceramic Art of the Ancients, perfectly as we are able to pass in review their Bronzes, our notions are just as incomplete and imperfect of their productions in precious metals; for they are based solely on a few specimens of jewellery, which chance only may in most cases have caused to escape the vandalism of greedy conquerors, to whom, from their being of great intrinsic value, they presented an attractive booty. Moreover, the classical period was ignorant of many a *technique,* reserved for the invention or at least for the more perfect development of later times. Thus the few antique models in these branches of Art-Industry which have been handed down to us, afford but a scanty help to the modern jeweller and glass-manufacturer in the exercise of their artistic taste.

The most flourishing time of the two last mentioned Arts does not coincide however with that of grand Hellenic Art, for it was much later, i. e., during the Cinque-cento period, nay in the seventeenth century, that they reached the height of their perfection. Then only Italian, French and German jewellers and Crystal-cutters were in possession of those technical resources, with which in hundreds of workshops they elaborated with untiring zeal and energy, works of the most exquisite finish which characterize the highly artistic age of the Renaissance. Here we see *niello,* or inlaid enamelwork, brought to perfection, and the filigree worked with a dexterous and skilful hand, there the artist incrustates the metal with the most splendid enamels, and precious stones contribute to the decoration, not only of valuable metal, but also of crystal vessels. The crystal manufacture, once brought to such high perfection in Classical Antiquity, is resuscitated from the oblivion into which it had sunk by the rapid degeneracy of Western Art; the use of most magnificent and rare material is thereby necessitated, and crystal manufacture reaches its zenith.

From the combination of such highly perfected processes, new works of most exquisite artistic taste and elegance, creations of great originality, make their appearance, and the inexhaustible imagination of the creative artist receives a new impulse which results in productions of everlasting value, the types of which are vainly sought in works of anterior epochs.

Our modern glass manufacture can borrow numberless most beautiful profiles from those splendid vessels * which owe their origin to the sixteenth or seventeenth centuries; and the charming, engraved ornaments with which they are adorned may be directly transmitted by the original manufacturing process, or excellently imitated by etching.

The same is true of metal mounts with which the

* see illustration No. 17; p. 157.

Renaissance adorns the crystals, and which it arranges and distributes with a skill and delicacy peculiar to itself. But they must be used with intelligence and caution, if, by marking the prominent features, they are to contribute succesfully to a truly artistic effect of the whole. For in connection with the aerial appearance of glass and crystal, the mounting, if overcharged, must appear clumsy, and will interfere with form and outline, elegance and dexterity in the ornamental treatment being of first requirement in order to secure success. The vessels of these periods will therefore equally captivate the interest of the jeweller and crystal cutter, who besides finding the most beautiful ornament for their suggestion and emulation may look upon them as models of great finish of workmanship, the contemplation and study of which will animate them to emulate their beautifully blended tints of gold, to imitate the harmony of color and sparkling brilliancy of the transparent enamel, and to take as models the elegant mountings, which connect in the simplest and most natural way their several parts, so that the structural features form, as they ought to do, the ground work for a truthful decorative treatment.

It was, as already mentioned, during the sixteenth and seventeenth centuries that most of these works were produced, i. e., not in the early, frequently not even in the high period of the Renaissance, although at that time the art of the goldsmith had already reached a great degree of perfection. Besides the imperishable works of high Art, we owe to the love for magnificence and show which characterised the contemporary popes, cardinals, and most eminent princes, a great number of the productions of the art-worker, having mostly no other object than that of ornament, in the full extent of the word. At royal and princely nuptials the trousseau of the bride used always to comprise a number of magnificent vessels and objects for the adornment of the table, the reception of jewels, ornamental and personal use, such as the refinement and luxury of the time required.

In the fourteenth century arose out of the guild of the Florentine goldsmiths the most eminent artists of the age, masters not only in their own sphere, but first-rate painters, sculptors, and architects, who carried the glorious fame of their school all over the artistic world of their time. Unfortunately not much more than descriptions remain now of the creations of the goldsmith's art of that age; Ghiberti's two magnificently wrought mitres, made for Pope Eugenius IV, have disappeared, the works of Pollajuolo have shared the same fate, and many productions of Turrini, Giovanni del Chiaro, Fra Giocondo del Tonchio, etc., may have perished in a similar way.

It has already been pointed out, and it may further also explain why the Quattro-cento shows so few specimens in that branch of art, that the most gifted goldsmiths were also great masters in other departments of the Fine Arts, the characteristic tendency of their age being pre-eminently directed towards the representation of the human, and works of High Art.

Nevertheless the technical processes had then attained a high degree of perfection. Finiguerro was great in niello-work; Turrini employed already the enamel *de basse taille,* so characteristic in this and the following period, for the enrichment of jewellery. During and after the sixteenth century, which employed also second rate masters in the useful arts, the reintroduction of crystal-cutting and glyptic, imported into Italy by Greek refugees after the fall of Constantinople, gave a great impulse to the production of those magnificent vessels which now adorn our collections and museums. Favoured by the requirements of wealth and luxury, then predominant and growing more and more general, their possession soon became a matter of fashion.

A great variety of materials were put into requisition; besides the highly valued rock-crystal semi-precious stones, such as opal, agate, sardonyx, lapis-lazuli, beryl, jasper, heliotrop, topaz, etc., were also much sought for. They were frequently also employed in works of art, such as camoes, intaglios, busts and relievi, as well as in the productions of Art-industry to which we principally refer here. The work of the lapidary was then often restricted to give to a vessel a graceful sweep of outline, and it was the task of the jeweller to enhance its form by an appropriate artistic enrichment.

Crystal especially was worked in pieces of a dimension now scarcely ever seen, and of a transparent beauty and purity, rarely to be met with. The great perfection which modern glass-manufacture has recently attained is the cause of that diminished demand in the market which explains the scarcity of large and valuable pieces.

It was certainly different in the times of Valerio Vicentino, the most distinguished and renowned master of his art, whose name has, in some measure, become a typical and generic designation for this industrial branch. Valerio di Belli (1546) for this was the real name of this superior genius, worked according to Vasari principally vessels of state for Clement VII who endowed the church San Lorenzo with them, as well as candlesticks for Pope Paul VII, and many other objects of art, now partly in the collection at Florence, partly dispersed in all the museums of the world. Almost every one of our art collections prides itself upon the possession of some of his work, though much is of doubtful authenticity, as are also many of the gold mountings on his vessels which are ascribed to the hand of Cellini. Valerio embellished his productions with most freely and beautifully treated Renaissance ornament, mythological figures, marine-monsters, etc., which in the most delicate manner are engraved into the crystal, so as to produce the effect of an exquisitely fine relief work. Contemporary artists, e. g., Jacopo da Trezzo, Gaspari and Girolamo Misseroni, Sarrachi, and others, were actively engaged in this artistic branch, which was introduced into France by Matteo de Nazzaro who like many others accepted the invitation of king Francis I.

The composition of these magnificent vessels of the sixteenth century, showing an exuberant richness and variety of form and profile, is marked by a greatly refined taste for the beautiful. There are countless variations between the chaste simplicity and graceful elegance of line which

recall the Antique, and the great boldness and effective design of profile, reliefed by the metal mounts which serve at the same time to connect the different pieces of crystal in larger vessels. Now we see an egg-shaped goblet on a low foot, and provided with an elaborate lid terminating in an enamelled knob, now an elegant tankard, the lid being entwined by a golden serpent, now a vessel in form of a pail or bucket, mostly in agate, encircled by simple ring-mouldings, and decorated with a richly enamelled handle; but in all instances they show forms of beautiful conception and excellent effect, created by the free and original imagination of the artist.

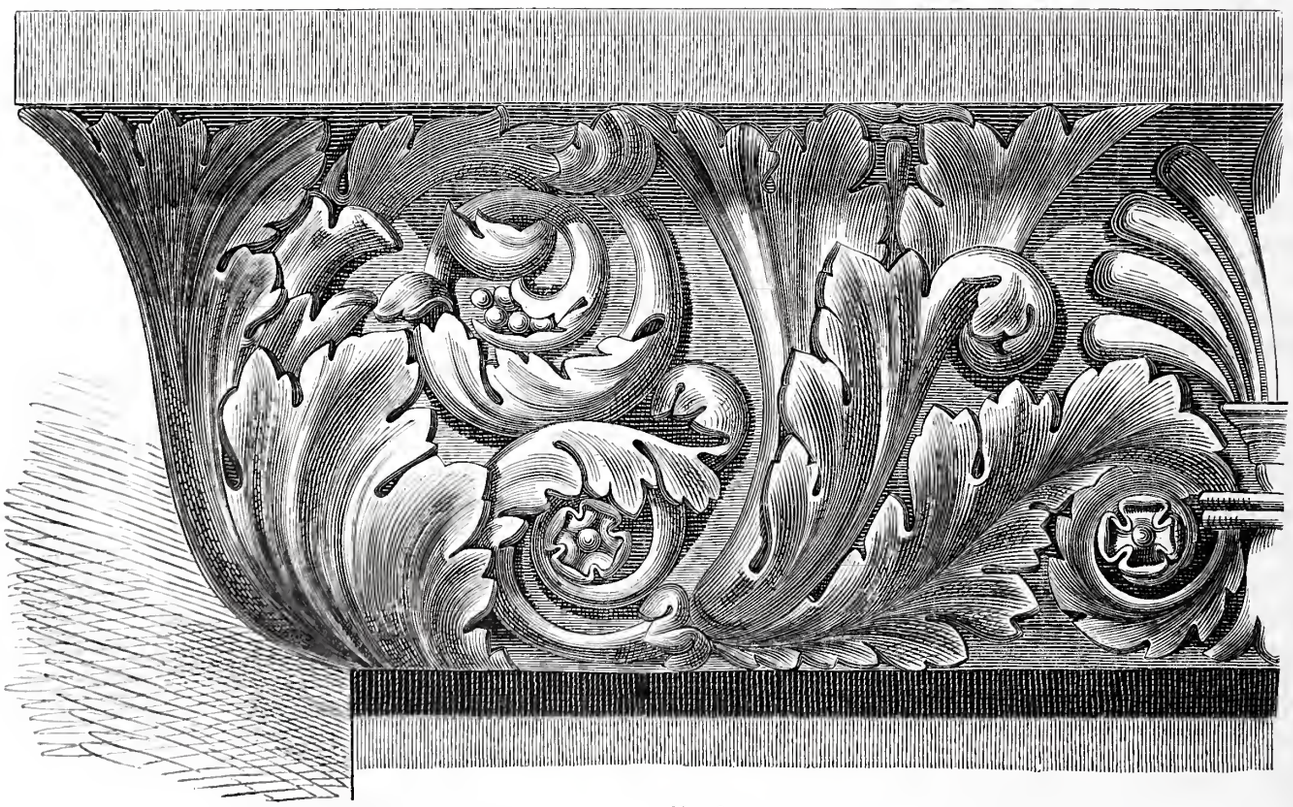
Not less rich and tasteful in design are plates and salvers which, either circular or polygonal, consist of one or more pieces, again connected by metal mountings. Dishes of colossal dimension were cut out of one piece of rock-crystal, to which the handle only was affixed. Objects of luxury, and for quasi-personal use were also made of crystal mounted in gold, e. g., candlesticks, watch-cases, and knives and forks, of which we find, a fine specimen in the treasury of the Teutonic Order at Vienna. On the crystal bulbs of vases and dishes the Art of the lapidary is displayed in its highest form. Objects of a more simple kind are decorated with flutings; either flat as in the antique candelabrum or vase, or, in better conformity with the transparent and highly refracting material, with deep, bold, and sharp edged channels such as have been successfully employed in modern glass manufacture. Many a fine old specimen, distinguished by a noble simplicity and beauty of form, might be pointed out as an appropriate model for modern reproduction, which without great cost and with but little modification could be manufactured in glass.

The bulbed part of the vessel is frequently enriched with delicate ornament and figure subjects. The acanthus leaves and scrolls, so characteristic of the Renaissance ornament, form an essential part in their composition, and interlaced bands, wreaths of fruit, flowers, and beads, enlivened with birds and fantastic animals are interspersed; but symmetry is only observed in the general arrangement, in the main-lines of the design, a strict repetition of the same forms being incompatible with the whole conception and manufacture of the work. In a still higher degree the decorative subjects of the animal type display an endless variety of forms and figures. The representation of the sea with its rolling waves is often attempted, and the vivid fancy of the artist peoples it with Dolphins, Nereids, Tritons, Sea-horses, and grotesque monsters of all sort, mostly borrowed from the Antique, from which also bacchanalian types are not unfrequently introduced into the relievi.

In the mountings, handles and spouts of the vessels, whether worked in the same material or by the goldsmith, the tendency of the art of the epoch to which the specimen belongs is most strikingly revealed. For the most part highly fantastic figures of serpents, reptiles, dragons, winged busts of women, faun's heads, masks, and other chimeras, bent and twisted into a handle, or spitting out from wide-open jaws the contents of the vessel, recall strongly the contemporary bronzes of Giovanni da Bologna or the mural paintings of Perin del Vaga, who evinced a peculiar talent by interspersing their ornamental compositions with grotesque monsters and chimeras. The Antique gave the impulse to a fervid development of the types of this fabulous world; for struck with its exuberance of life and forms, Raphael, immediatly after the then newly excavated remains of the Roman baths, received them into the sphere of his own conception. His contemporaries and disciples followed his example, adorning walls, pilasters and friezes with their fantastic decorations, thus imparting a new life and spirit to their ornament. The Grotesque reaches the highest form of expression in a peculiar sort of vessels, which may have owed their origin to the extravagancies and vagaries of artists who prided themselves on conquering great technical difficulties. These are animal types, principally birds, e. g., herons, cocks etc., the hollow bodies of which in cut crystal represent drinking cups which were often enriched with gold, precious stones and pearls. None of the old art-inventories are without specimens of such animal types, and all our modern collections have some to show, especially as they soon became the object of a vastly productive imitative branch of modern industry which keeps a large stock of such curiosities for art-amateurs.

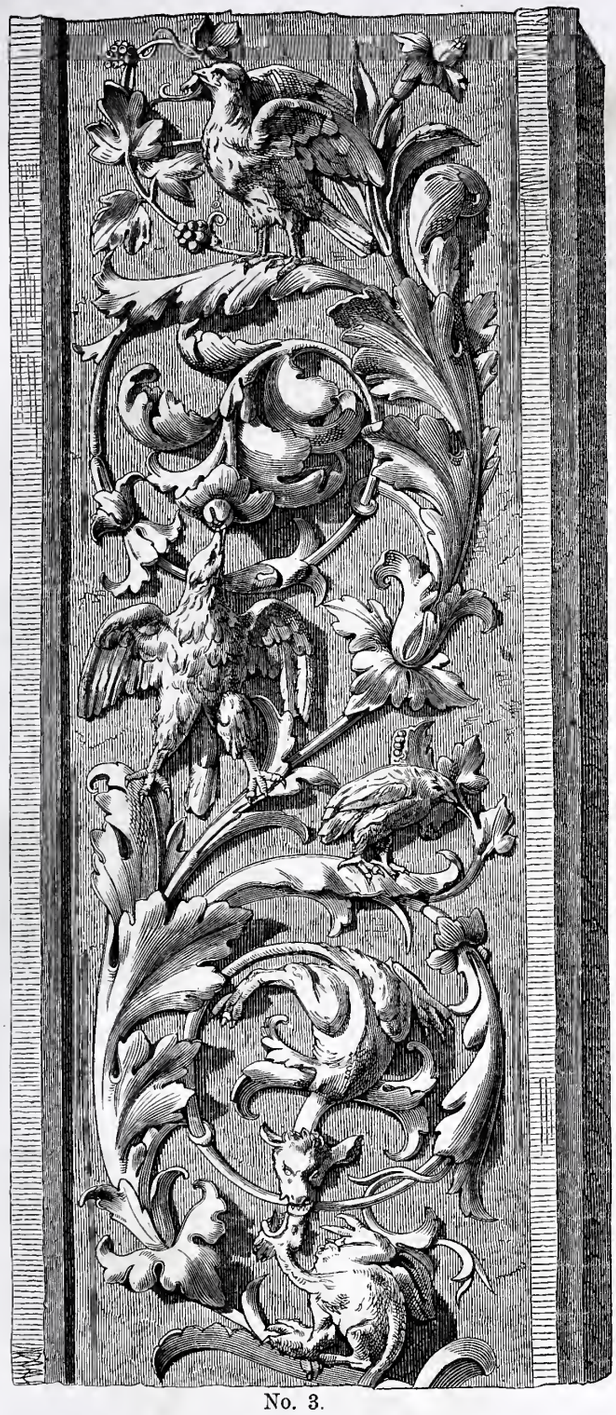
(To be continued.)

No. 1.



No. 2.

No. 1. Græco-Roman Style; Antefix in terra-cotta, ornamented with a tragic mask (see Part 7, p. 100).
No. 2. Roman Style; Corner of Cyma, crowning the entablature of the temple of Jupiter, Rome.



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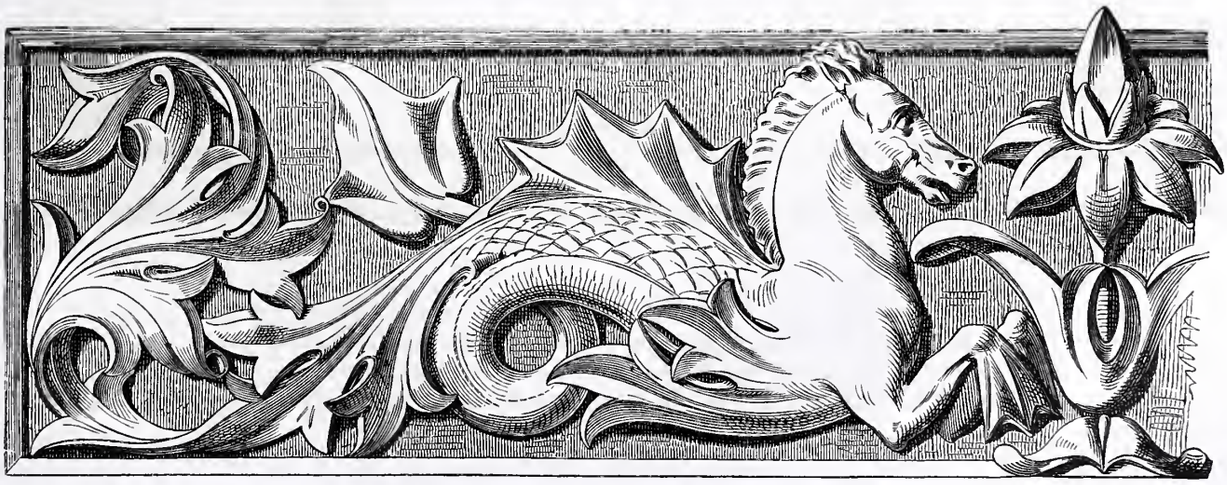
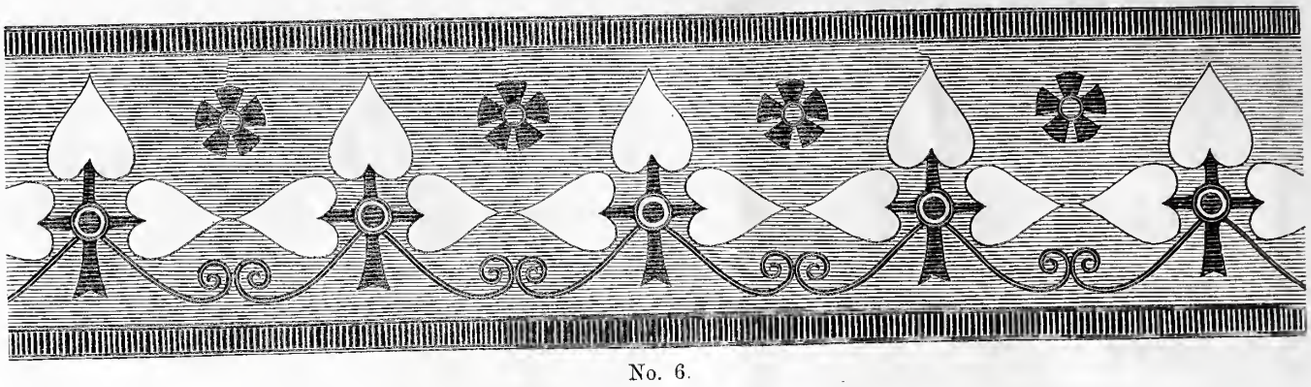


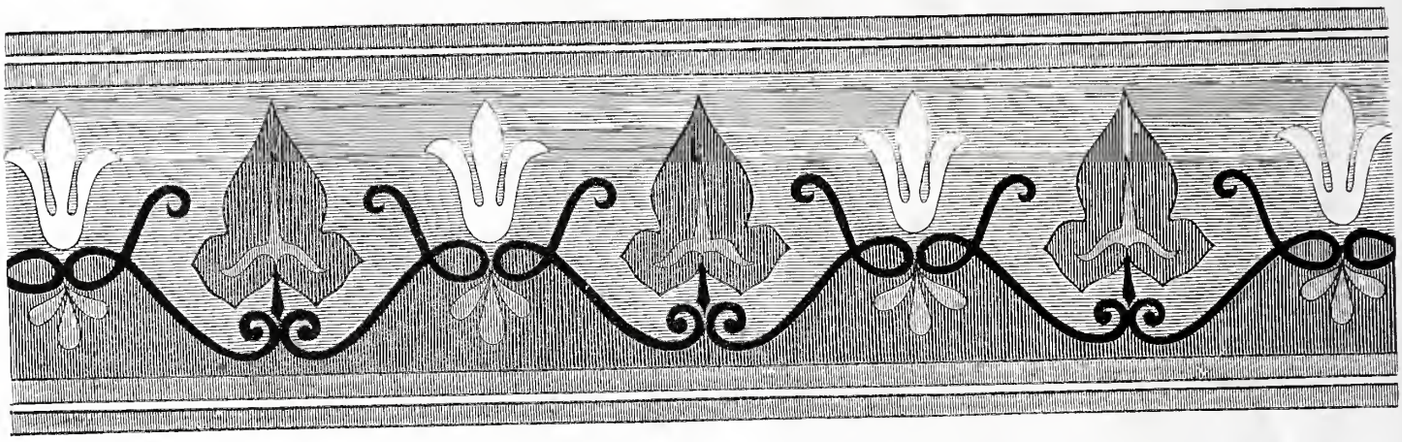
No. 5.

Nos. 3 and 4. Italian Renaissance; Panel Ornament of the sixteenth century.

No. 5. Modern Panel Ornament.



No. 6.



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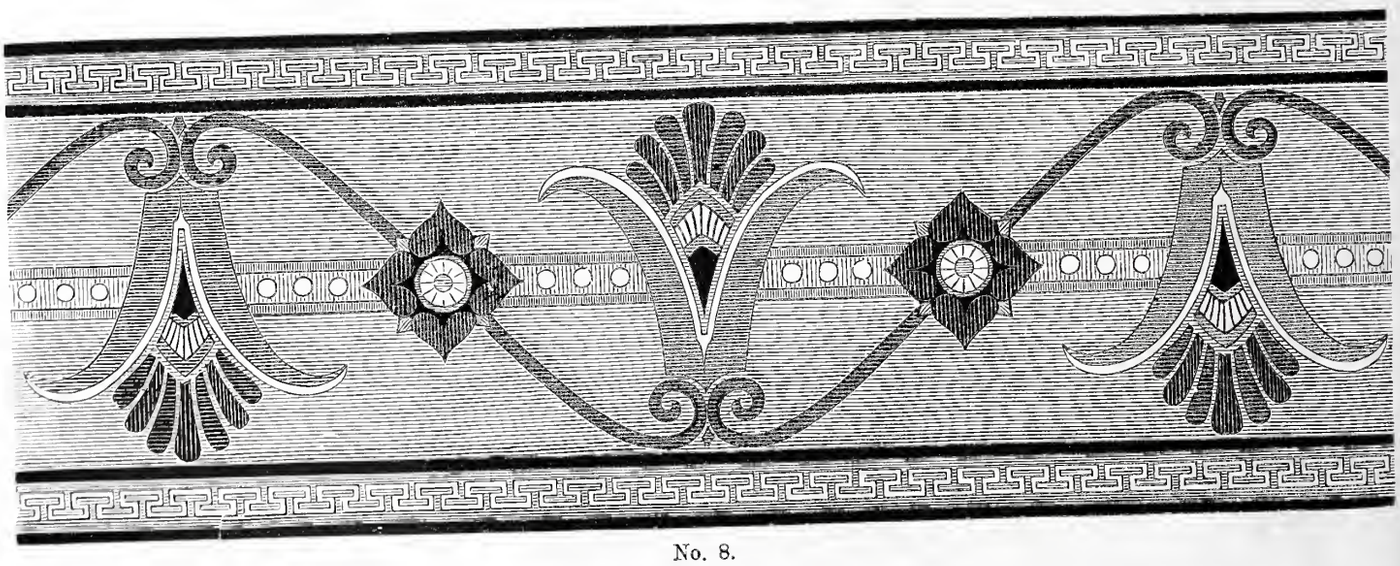
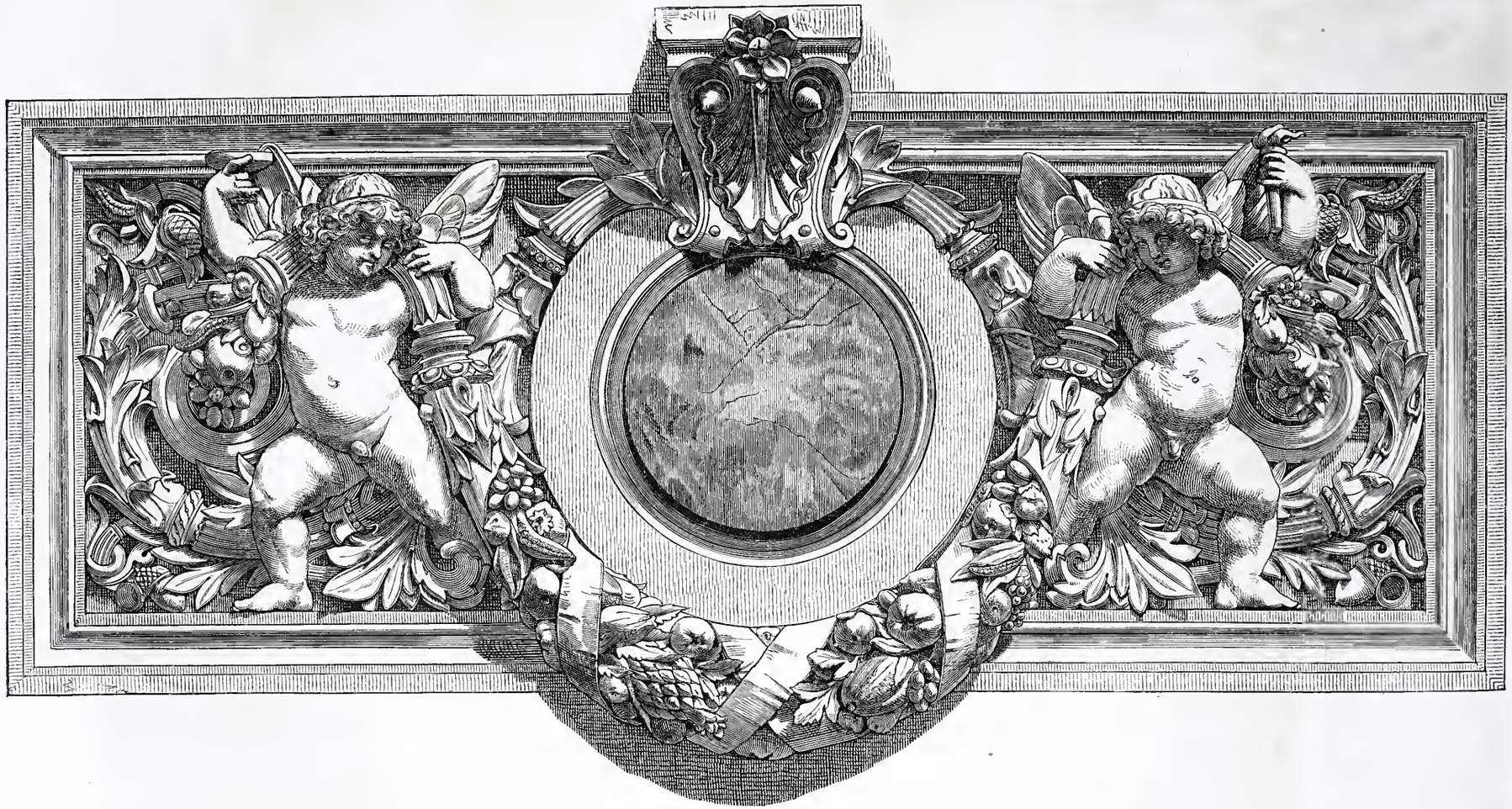


No. 8.

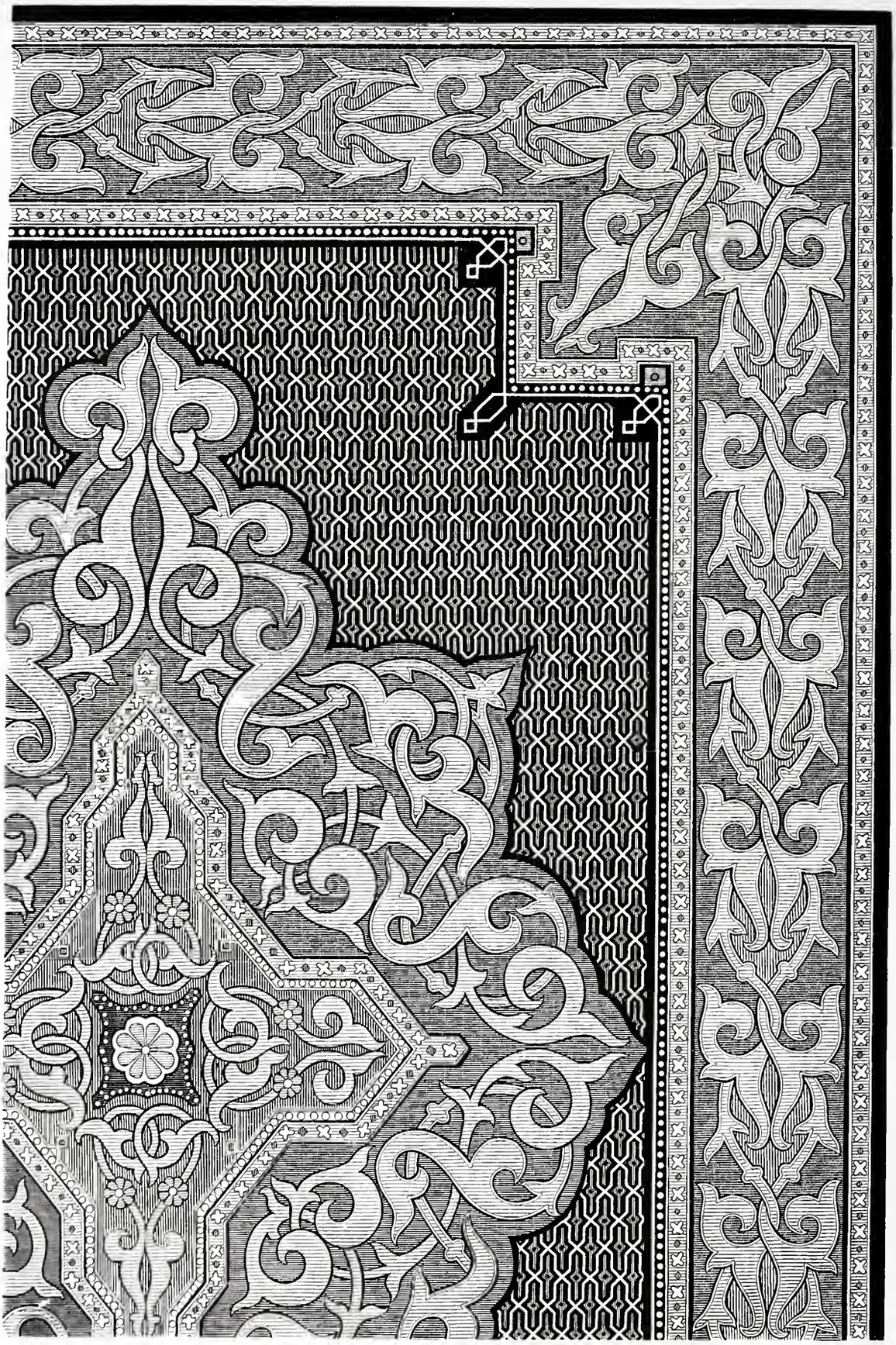
Nos. 6 and 7. Borders for Vases. No. 6 shows white leaves with brown stems and flowers on yellow ground; No. 7 brown-red leaves, and white buds, with black stems and scrolls, the upper portion of ground being grey, the remainder like the leaves brown-red, relieved by yellow veins. The pattern, bordered with yellow bands, is all edged or outlined with black.

No. 8. Painted Wall-border, for interior decoration. This pattern, designed in imitation of late Grecian models, shows conventionalised lotus, painted red, bordered with white and surmounted by a fan-shaped ornament the leaves alternately blue and green; the little flowers are blue with white centres, relieved by red, the stems green, the band through the middle buff with white dots, the ground light grey, the bordering frets white on light-brown ground edged with dark-grey lines.



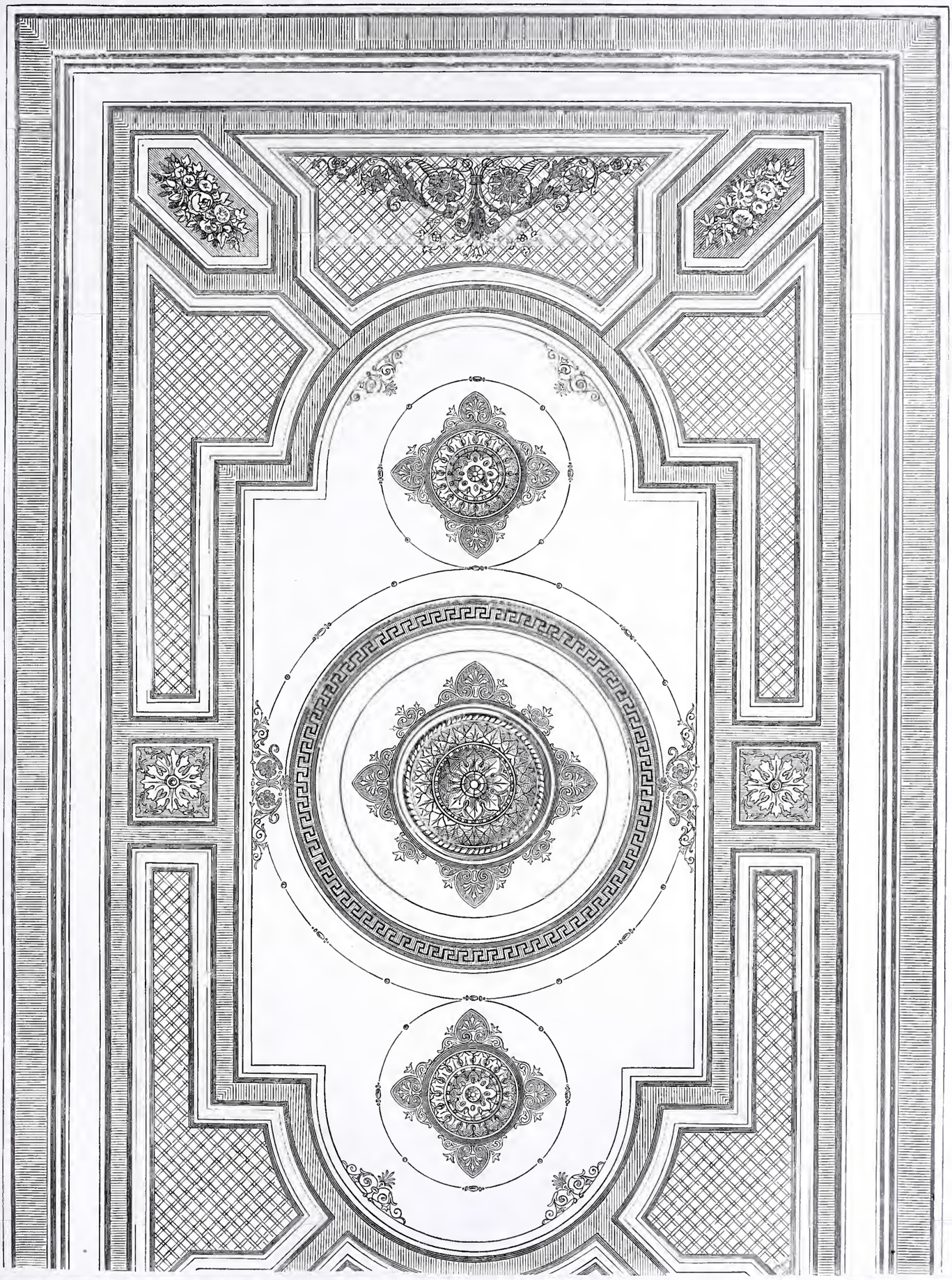
No. 9.

No. 9. Detail of Panels, occupying the spaces between the groups of figures of the attic story of the New Opera House, Paris. The centre-medallion in green Swedish marble bears the gilded letter N in relief. (see Part 3, p. 48). — M. Ch. Garnier, Archt.



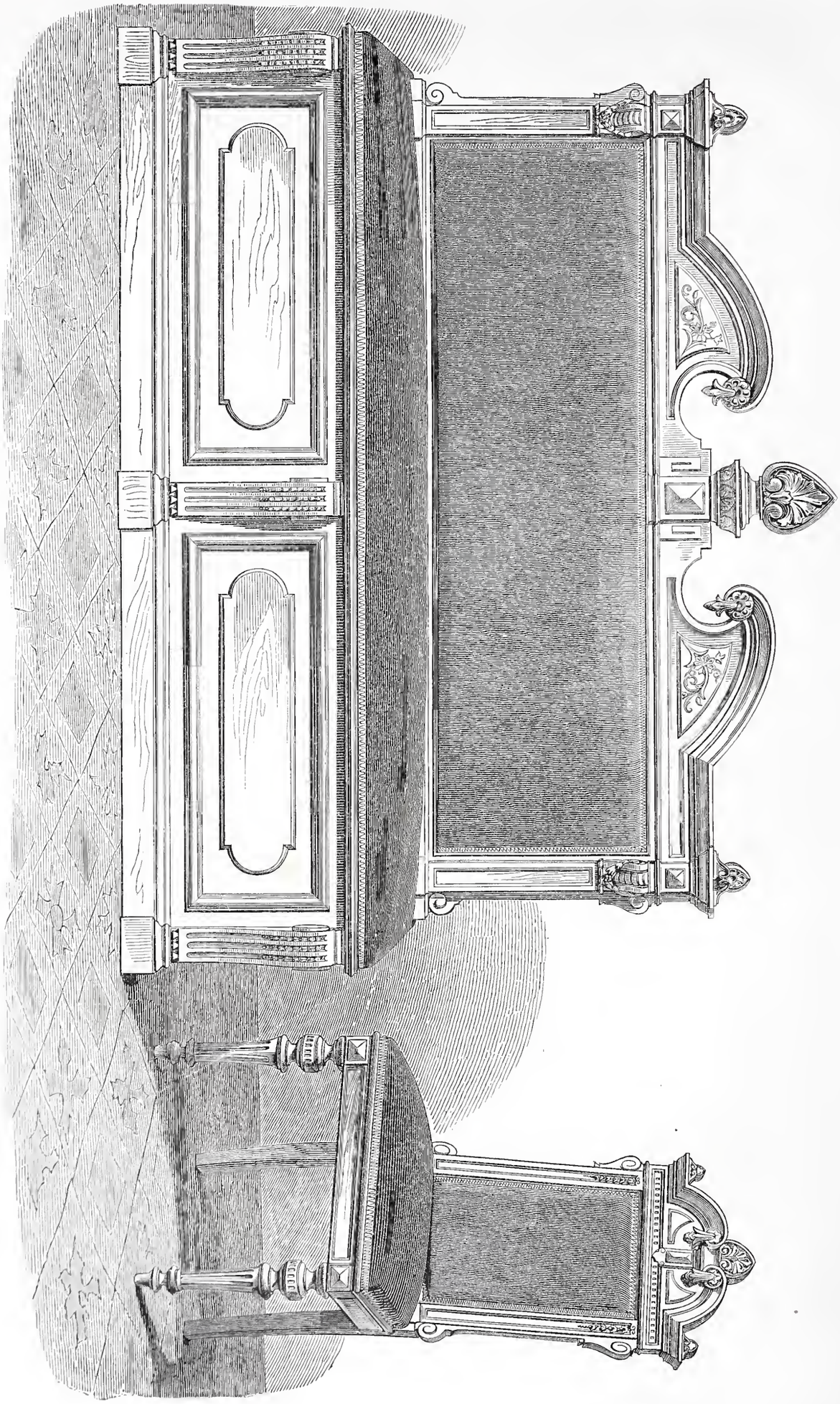
No. 10.

No. 10. {Carpet in Moresque Style; the principal color of the design is maroon, edged with yellow and black, the blue and red ground being represented in our drawing respectively by vertical and horizontal shading.



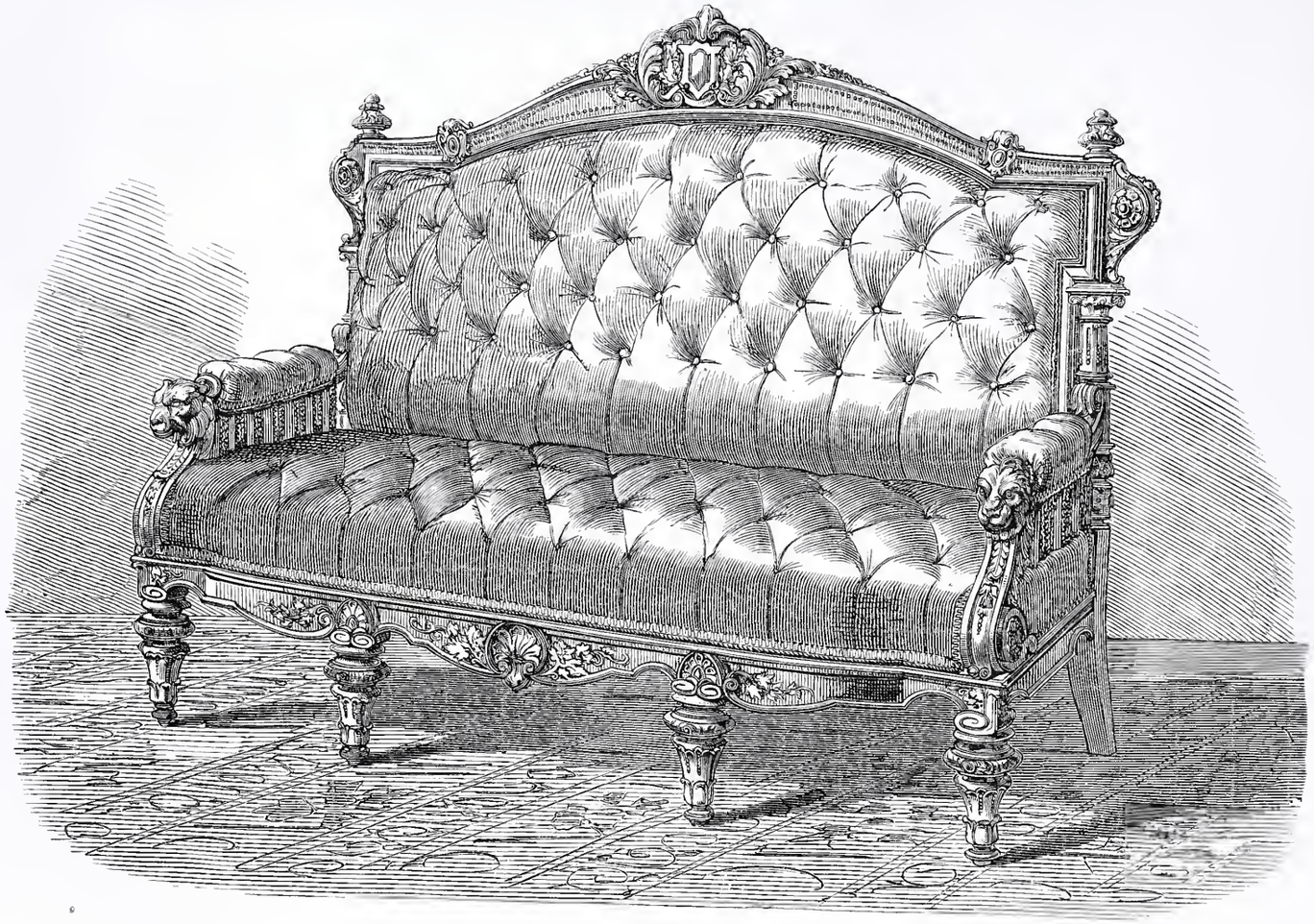
No. 11.

No. 11. Design of Ceiling for a Staircase. For full-size details see Supplement, Nos. 1—3.



No. 12. No. 13.

Nos. 12 and 13. Carved Oak Furniture, with velvet covering.



No. 14.

No. 14. Sofa, in stained Pear, with bronze ornaments, and crimson damask covering. (see Part 9. Nos. 17 and 18.)

No 15.

No. 15. Rich Pier-glass Frame, surmounting the mantel-piece of a Saloon; the gilding is yellow for the framing ornaments, green for leaves and stems, and white for buds and flowers. — M. Bénard, Archt. Paris.

No. 16.

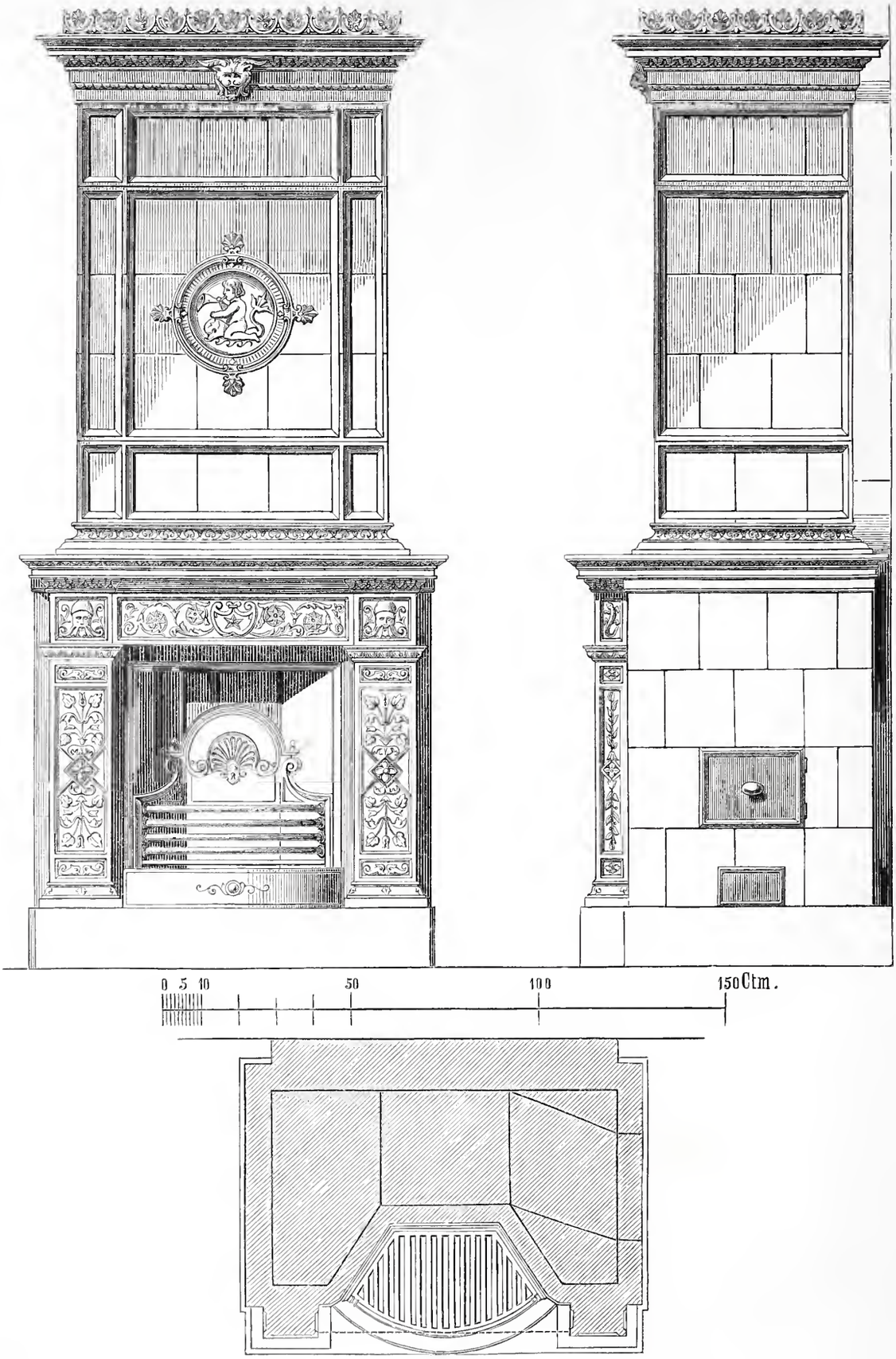
No. 17.

No. 18.

No. 16. Renaissance Goblet; Sixteenth century work from the Germanic Museum, Nuremberg.

No. 17. Crystal Drinking-cup; Sixteenth century work from the collection of the Prince of Hohenzollern-Sigmaringen.

No. 18. Renaissance Ewer in Copper; from the same collection.



Nos. 19—21. Glazed Earthen-ware Stove, the lower portion with open fire place; front and side elevation and plan.

For details see Nos. 6—10 of Supplement.

No. 22.

No. 22. Wrought-iron Grille for upper part of house-door; 2 mèt. in clear; from the Palace of Archduke Louis Victor, Vienna.

No. 23.

No. 24.

Nos. 23 and 24. Leather Case; embossed work (A. D. 1518); from the Germanic Museum, Nuremberg.

VARIOUS.

For cleaning Brass.

Articles of brass, very much stained and covered with verdigris, are thoroughly cleaned by brushing them over with a mixture of 1 oz. of muriatic acid and half a bottle of water. They are then cleaned with a brush, dried with a piece of linen, and polished with fine washleather and prepared hartshorn.

The Foundation of the Old Louvre.

The municipal government of Paris caused a very careful examination to be made last year of the remains of the old Louvre, the fortified castle of Philip Augustus, which lie beneath the enclosed court or square of what is now called the Old Louvre, and it was found that the ideas respecting this ancient edifice were very erroneous.

The base of the Donjon-tower which figures conspicuously in history, was found intact, and only a few feet beneath the present surface of the ground. An admirable method has been adopted, of recording the form of the ancient fortress; the entire ground-plan has been laid in black and white asphalte, except where the old building lies beneath the pavement of the present court, in which case granite has been used to represent the foundation of the old building. There is an immense advantage in thus bringing so interesting a remnant of a byegone age bodily, as it were, under the eye of the public. Engravings would, of course, perpetuate the lines for all those who sought for information respecting them, but the method adopted will arrest the attention of many and lead to inquiry.

Journal of the Society of Arts.

Paint for Stoves.

Black lead is a great institution in this country, and probably few but cooks and housemaids would care to see its use diminished. It certainly has its recommendations, but it can hardly be said to be ornamental, while it entails an immense amount of labour on our servants. In Germany, where a stove is continually to be found in the common sitting-room of a respectable family, the unsightliness seems to have been felt, and a suggestion has been made to do away with the black lead, and paint the stoves and ovens. Oil paint, of course, cannot be employed, but water-glass (silicate of potash) colored with pigment to match the paint of the appartment is the material recommended. Before this is applied the iron must be thoroughly cleansed from grease, and all spots must be rubbed off with a scratch brush. Two or three coats of the paint may then be put off and allowed to dry, after which the fire may be lighted without fear of injury to the color, which may, indeed, be heated to redness. Grease or milk spilt over the paint has no effect upon it, and it may be kept clean by washing with soap and water. Dutch ovens and like utensils may also be coated with the same materials, and the labour spent in polishing be saved. A good coating of the paint, the author says, will last a year or two. *Scientific American.*

The Workshop.

A Monthly Journal, devoted to Progress of the Useful Arts

EDITED BY

PROF. W. BAUMER, I. SCHNORR AND OTHERS.

VOL. I. No. 11.

CRYSTAL MANUFACTURE AND JEWELLERY.*

These creations are certainly on the very verge of legitimate licence and good taste in Art; still the display of a highly accomplished workmanship atones, to a certain degree, for the deficiency in a purely æsthetic point of view, and the non-conformity of purpose. For with an admirable precision and finish, every feather, and the most minute details, are cut out of the hard material, and wrought with handsome gold mountings. This incongruity in form and purpose may partly at least be accounted for by its having a precedent in the Antique, where heads of animals, etc., were also used for drinking vessels; but the fact that only very few specimens of this kind are preserved entire in our modern art-collections, the wings especially which were affixed to the lid being generally broken off, shows how very injudicious in conception and inappropriate for use these productions were.

Still more objectionable than these are certainly representations of other animal types, such as elephants, etc., carrying an enamelled tower on their backs, used for inkstands, or other fancy-articles, e. g., ships in full sailing tackle, made out of the same refractory material. The brothers Sarrachi are pointed out by their contemporaries as particularly skilled in the manufacture of such extravagances. They give a significant hint of the erroneous tendency to which this branch of art is inclined, and how, in its downward course, it may degenerate into mannerism and vagary. Witness the subsequent period, in which the principles of true Art were forsaken, and all fitness and beauty of form sacrificed to odd fancy and arbitrary caprice, then at the height of fashion. They mark the decline of crystal-manufacture of that age, soon also to be followed by that of the Fine Arts in Italy.

Nevertheless, with the Uffizi Gallery and the Pitti Palace at Florence, this country is in possession of the most remarkable and beautiful collections of crystals (e. g., Valerio's celebrated casket of Pope Clement VII, etc.); while also France, England, Germany, and Austria have, in their art-collections, stored up immense numbers of rich treasures of this kind. Besides Francis I, already mentioned as having given the impulse for the introduction of this manufacture, it was especially Rodolph II, the highly refined, artistic prince of the house of Habsburg who, by his invitation of Italian goldsmiths and lapidaries to his court at Prague, founded a school for the exercise of these arts in Bohemia.

It is a remarkable incident in the realm of Art, that the Useful Arts, more than others, hold their ground against degeneracy, producing, long after the decline of high Art, Architecture, and Sculpture, works of the former purer stamp. Indeed a certain dogged perseverance is innate to the more inert and sober trade, and it requires some effort to induce it to leave the well-used path for a new track. Its good old ways and customs are a protection against a rapid depravation of taste, and by the mediation of the Useful Arts the transition of styles becomes less abrupt; for they furnish, while other Arts are already launched in a new direction, excellent and even superior works in the old style.

Indeed in this comparatively later period (1576–1612) innumerable works of great perfection were produced which may rank in beauty of composition and finish of workmanship with those of the earlier Italian masters. If works of Italian origin are often superior to others, the reason must be sought in the circumstance that Italian Renaissance in general shows all the fascinating charm and unblemished purity of an original style.

To the collecting mania of Rodolph II Austria owes her great profusion in such works of Art, displayed especially

* See p. 145 *ante*.

in the Vienna *Schatzkammer* and *Antikencabinet,* although many of the most remarkable specimens have found their way into other countries. Not less rich is also the *Ambraser Gallery,* founded by Archduke Ferdinand (ob. 1595), amongst the treasures of which must be mentioned a drinking cup, 18 in. high, which surpasses in magnificence and costliness everything else of the kind. Made for Duke Charles V of Burgundy it is also of great interest on account of its comparatively very early date. The principal feature of its ornamentation consists in the monogram of two C facing each other. Other splendid pieces of this collection are a tazza, with satyrs arranged into handles, and a decanter with enamelled neck with the emblems of the zodiac engraved upon it. Of these and many more objects of inestimable value the rather scanty show in the *histoire du travail* of last year's Paris exhibition could give but a very incomplete idea. *

Most of these productions are of Prague workmanship; still Nuremberg and Augsburg, for a long time the centres of German Industrial Art were both highly renowned for their goldsmiths and crystal manufacturers. However considerable in number and skilled in their art, the names of the artists are now unknown and forgotten; very seldom only, by some good fortune, some one or other is still preserved: thus, a very large vessel, seventeenth century work of the Vienna collection, bears the name of the Italian Tortori.

Still handsome works were furnished during the seventeenth and eighteenth centuries up to which time we can follow the development of this art. But glass-manufacture, which in Bohemia especially was extensively cultivated, could not but supplant crystalcutting; not however without imparting a new character to the former; for in opposition to the Venetian glass-work, where form and finish are due to the art and skill of the glass-blower, the Bohemian process realized these by the grinding and cutting of the glass, thus laying the foundation of the school of Bohemian glasscutters, which is not entirely extinct even now.

The International Exhibitions have given the impulse to very laudable efforts for drawing forth treasures of crystal-manufacture stored up hitherto in museums, and for making use of them in modern glass-manufacture. England especially, guided by solid studies of the Antique and Renaissance, has made astonishing progress in this art.

Nevertheless one great, fundamental error, frequently apparent in recent productions, must be pointed out, which, while mastering the technical difficulties, sets aside the nature and typical character of the material, and offends particularly by the display of color and gilding, and by the employment of opaque glass. Those masterworks of the Renaissance, the crystal vessels of the sixteenth and seventeenth centuries, afford a rich profusion of simple and beautiful motives, by an earnest study of which the regeneration and improvement of this art, of absolute necessity if truth and perfection in a technical as well as purely artistic point of view are to be attained, can ultimately be accomplished.

* The Austrian Museum for Art and Industry has published some magnificent specimens by way of photography. A rich series of very accurate designs of the most remarkable crystals has been prepared during the last few years by the same institute for another intended publication.

II.

These beautiful crystal vessels, just recommended as models for glass-manufacture and pottery, are not less interesting to the goldsmith. Independant of their importance as subjects for direct imitation or better suggestion, he finds in their decoration and mounting the application of the manifold processes of enamelling, precious stones, gilding of different hues, excellent combinations of mat and high polish, and sees all the elements and decorative features of his Art represented which play so prominent a part in modern jewellery.

The necessity of improvement is very obvious in this branch of the goldsmith's art; for nowhere do we meet so much which encroaches on the dictates of common sense and true art as here, where ignorance of the standard principles of style is associated with a melancholy poverty of invention. How vastly different is the tendency of modern taste from that predominant during the age of pure Renaissance! Like the uncivilized, we have rejoiced until lately, nay we do so even now, at the sight of solid masses of brilliant gold, however clumsy in form, in which generally some pearls or precious stones are set without regard to arrangement and elegance of form. The treacherous brilliancy of the gold, so dangerous to true beauty of form, is applied with a lavish hand, instead of being blended or deadened, and seeking the effect more in contrast than in its high polish. Hardly any attempt is made to impart to the object the stamp of Art, by enamel, niello, or engraving. The last great exhibition furnished indeed some successful attempts to introduce enamel work, and although the mode of execution and application is not all that can be desired, we may hail this progress with great satisfaction.

Besides the colored enamel, two other varieties of the same may be discerned to have found their way into modern jewellery. The one is suggested by Eastern Art, and is, in its nature and origin, the type of surface-decoration. It is either *champlevé* or *cloisonné,* showing a variety of floral ornament which, bordered by delicate gold-lines, and the magnificent display of colors peculiar to them, produces the most fascinating effect. English and French bronze manufacturers and jewellers already apply Eastern enamel with great success, although subject to the blame of being far too unscrupulous in distinguishing the different periods of style, and too forgetful of the necessary harmony between the decoration of the vessel, and its form.

The chief reason of this is to be sought in the fact, that Eastern Art furnishes far too few ornamental motives for the plastic features of the vessel, such as handles, spouts etc., in which it is far behind other styles.

The other chief variety of enamel-work, based on Italian Renaissance on account of its great advantage of commanding an exuberant richness of the pictorial and plastic elements, is restricted in so far as its delicate creations require the execution in precious metals, in order to do justice to the full extent of its beauty. It is acknowledged that the *email en basse taille* or transparent embossed enamel, highly flourishing during the sixteenth and seventeenth centuries, lent great artistic value to all goldsmith work of that time, and led altogether to the most remarkable productions in this Art. The origin of transparent enamel must be sought in Italy, and according to Vasari's opinion, almost universally admitted, the Silver Altar in Arezzo by Niccola and Giovanni Pisano is supposed to be the first important creation in this style. Florence was soon the most renowned seat of goldsmithery, the records of which begin with the names of such artists as Michael Angelo di Viviano, Cesarino Rosetti, Francesco Salimbene, etc., and which finds its apogee with Cellini, and the Milanese Caradosso.

The manufacture of *email en basse taille* consists principally in a thin coating of finely moulded relief-work with vitreous colors; both Vasari and Cellini have transmitted the description of this process to us, the latter not without urgent demand for the employment of the graver to the exclusion of the puncheon or hammer. The most brilliant scale of tints, especially deep blue, green and brown is at the disposition of the artist, and being transparent on silverground, they show the most fiery brilliancy. Red demands indeed a layer of gold if it is to produce that gorgeous effect which Cellini requires of his *smalto roggio*. The splendour of this color, the chief element of which is chloride of gold, surpasses everything in beauty, for which reason it was used pre-eminently for enamel ornamentation in the Renaissance period, to which it owes its invention, Antiquity not being acquainted with its preparation. We find light cobalt-blue, white, yellow-green, a rather dull violet and black amongst opaque colors most frequently used. In good productions the very necessary precaution, to coat only small surfaces, zones or lines, is especially observed when translucid vitreous enamel is simultaneously employed.

The share of work allotted to the goldsmith and enameller in the manufacture of these crystal vessels, consists in mounting and connecting the several pieces, but especially in the ornamentation of spout, handle, and foot. Almost always the horizontal mouldings and bands are decorated with opaque enamel, now bead-rolls in gold and blue, now screw-like enrichments in gold on white, or in large dimensions black on gold, being employed.

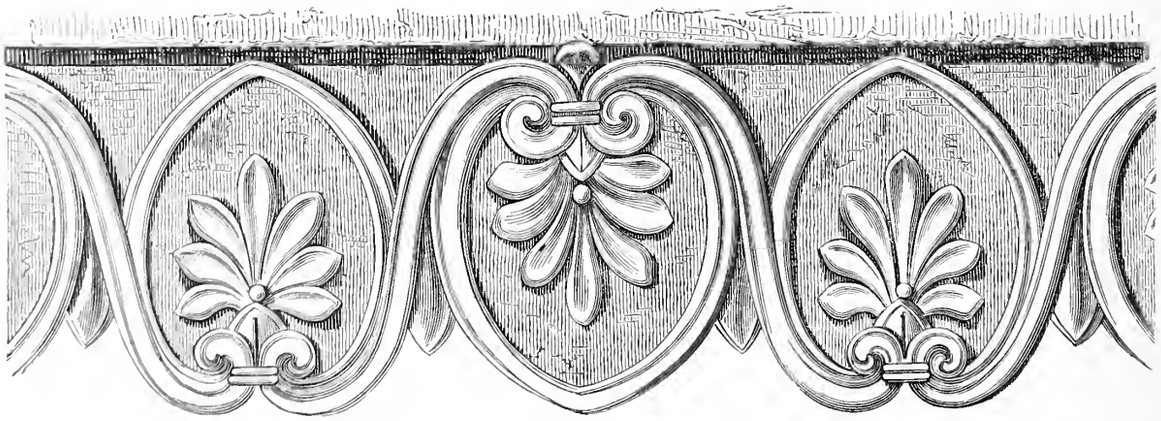
The borders on the circular or elliptical foot of some cups or tazzæ show only translucid vitreous enamel of high brilliancy of color, designed with great artistic taste: thus we see black scroll-work with splendid buds and flowers, interspersed with exotic birds, butterflies, or all sorts of animal types, e. g., grass-hoppers, flies and snails. The brilliant colors in which these fantastic compositions are executed cover, gracefully variegated, the bodies of the animals, which are generally green, and the ground-color slightly hatched or scored, producing the effect of delicate shading or modelling, while the wings, varying in blue and red color, are edged and separated by very thin gold lines, and the beaks and claws remain black. Butterflies receive frequently a deep, magnificent yellow, beautifully contrasting with the dead gold tint. Where there are great flat surfaces to be decorated, the flowing scroll-work is often distributed all over the space, or flowers, mostly pinks, are playfully scattered upon it. But a certain regularity is still observed, as in the lid of a cup of the Florentine collection, which ranks amongst the best specimens of the kind. There even the smallest space, e. g., the small round plates on the inside of the lid and foot of the vessel, serving for the fixture of the connecting screw, are enriched so charmingly in composition and workmanship, that they might directly serve as motives for brooches.

Other decorative features are festoons, wreaths of fruit, and drapery, such as the grotesque taste used to indulge in. To the latter however must be often ascribed uncomely and inappropriate elements such as volutes twisted into a right angle, wrought into highly conventional vegetable ornament.

(The conclusion in our next.)

Specimens of Ornamentation.

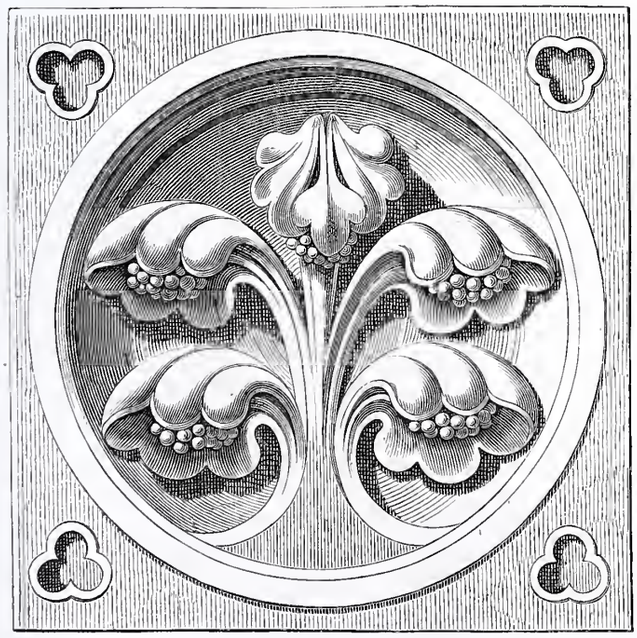
No. 1.



No. 2.

Nos. 1 and 2. Greek style. — Ornaments in Terra-cotta; No. 1 Upright Tiles, surmounting cornice or eaves; No. 2 Honey-suckle border.

No. 3.



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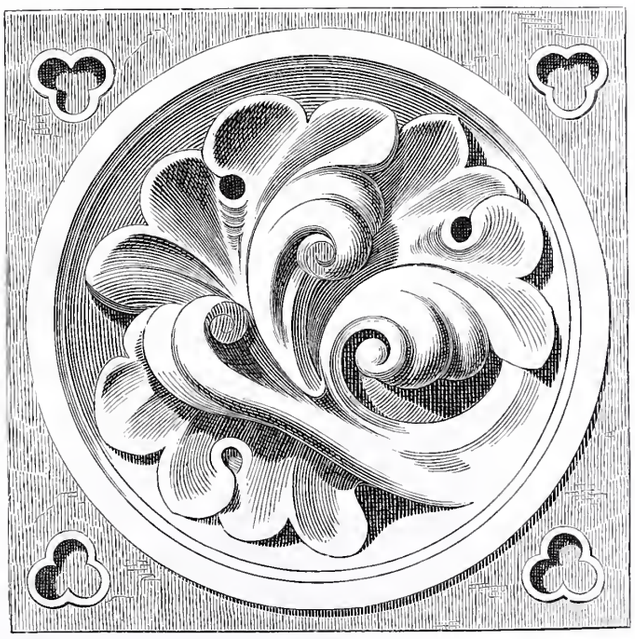
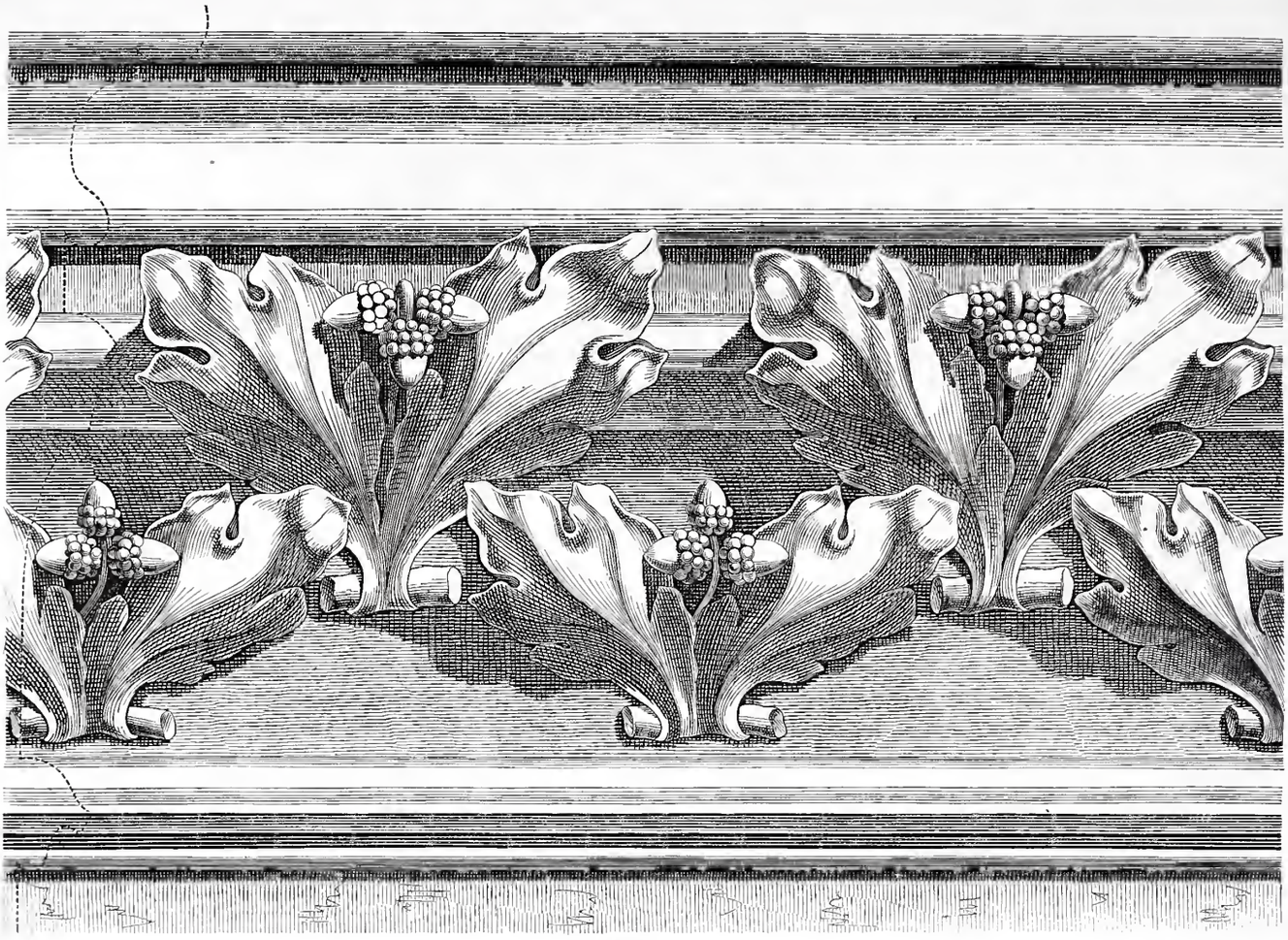


No. 5.

No. 3. Roman Style. — Eagle in marble.

Nos. 4 and 5. Early Gothic. — Carved flowers, from principal entrance of Séez Cathedral (Orne); 13th century.



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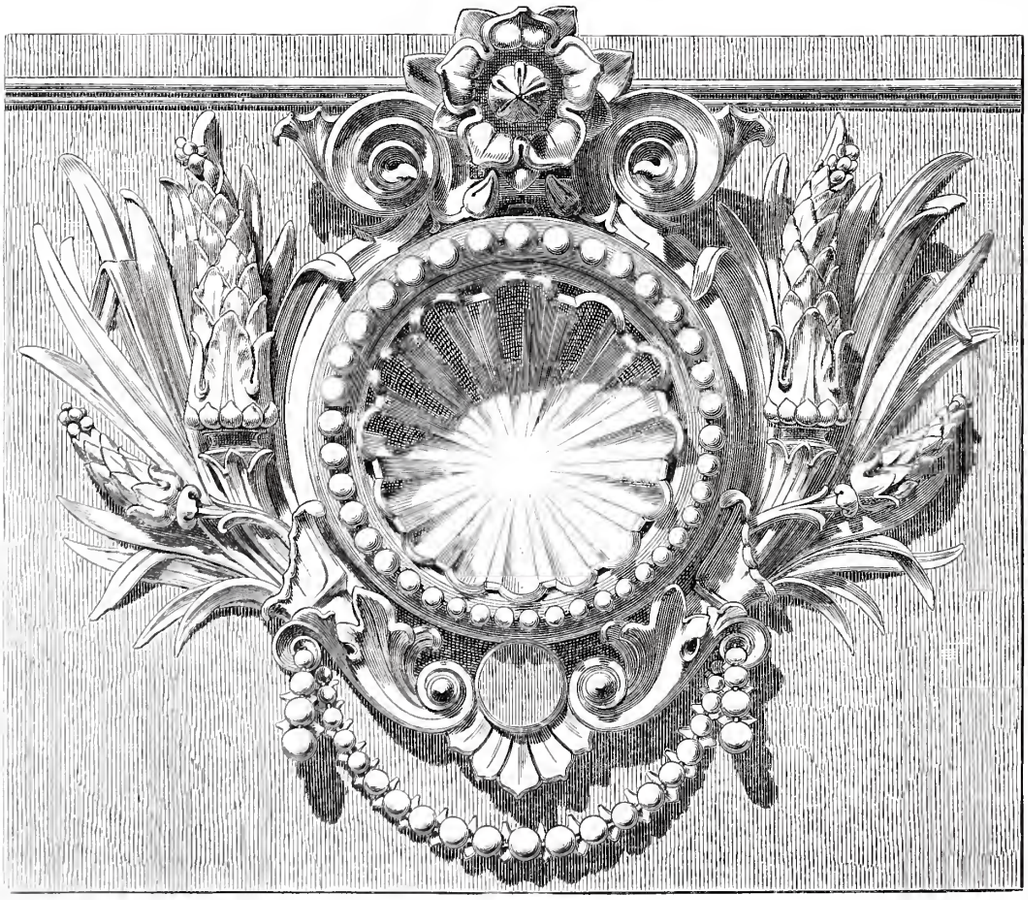
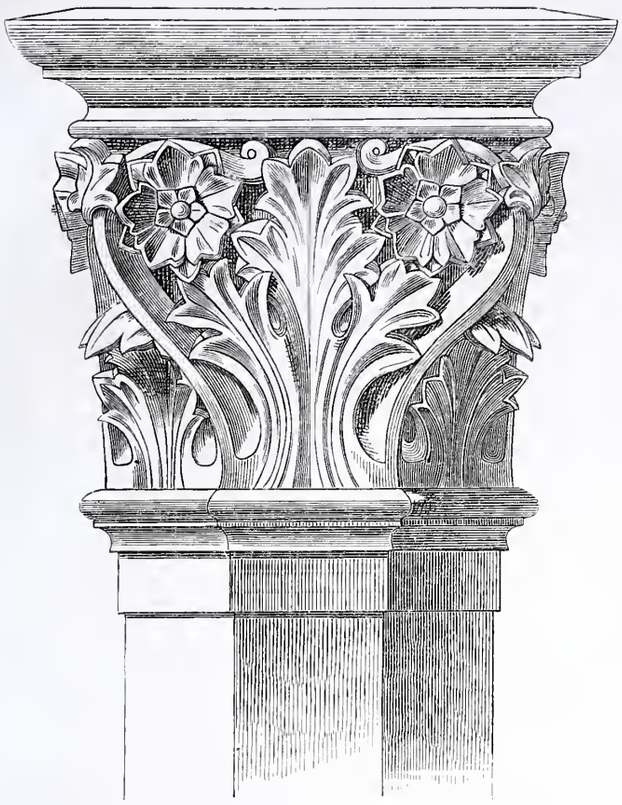
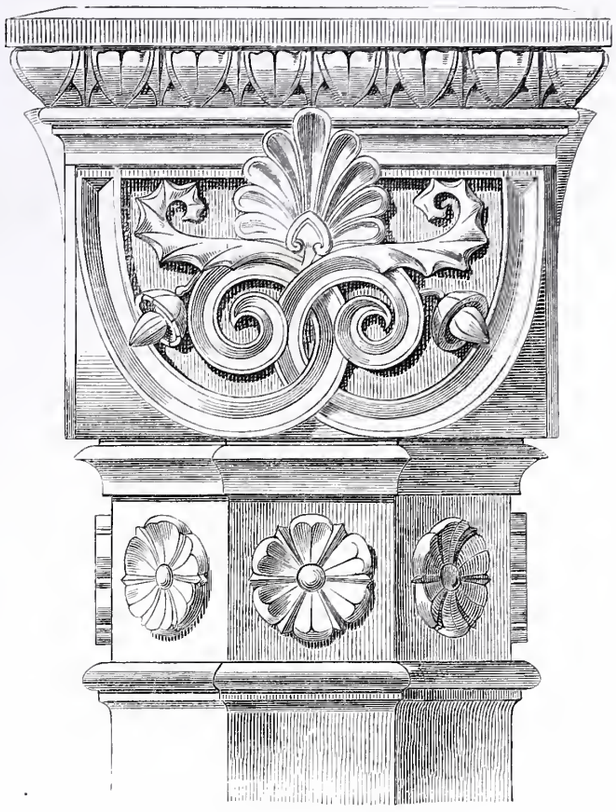


No. 7.

No. 6. Fourteenth Century Gothic. — Detail of stringeourse in the Oratory of Louis XI, Sainte Chapelle, Paris.
No. 7. Back of Gasbrackets, in the passage of the New Opera House, Paris. — M. Ch. Garnier, Archt.



No. 8.



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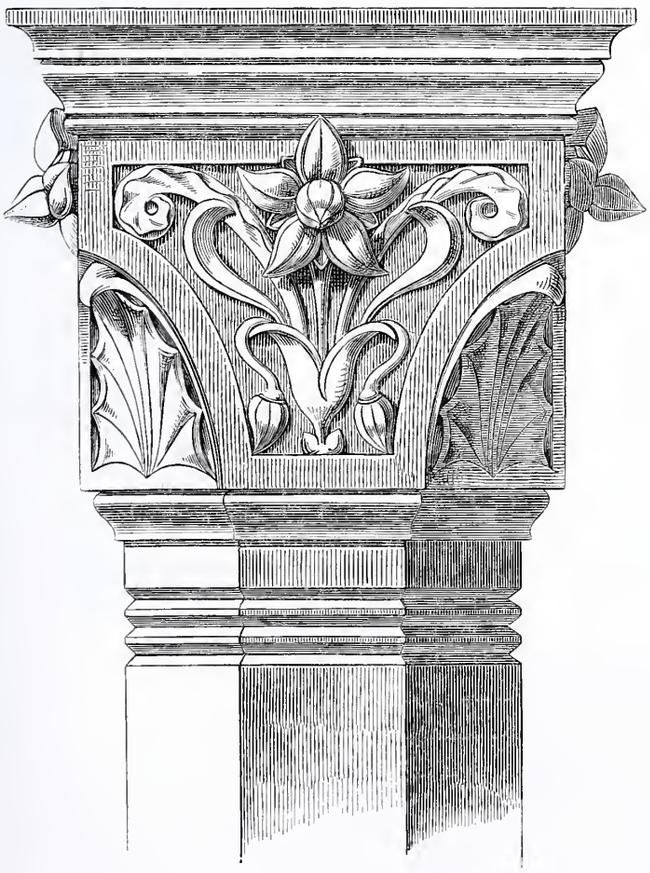
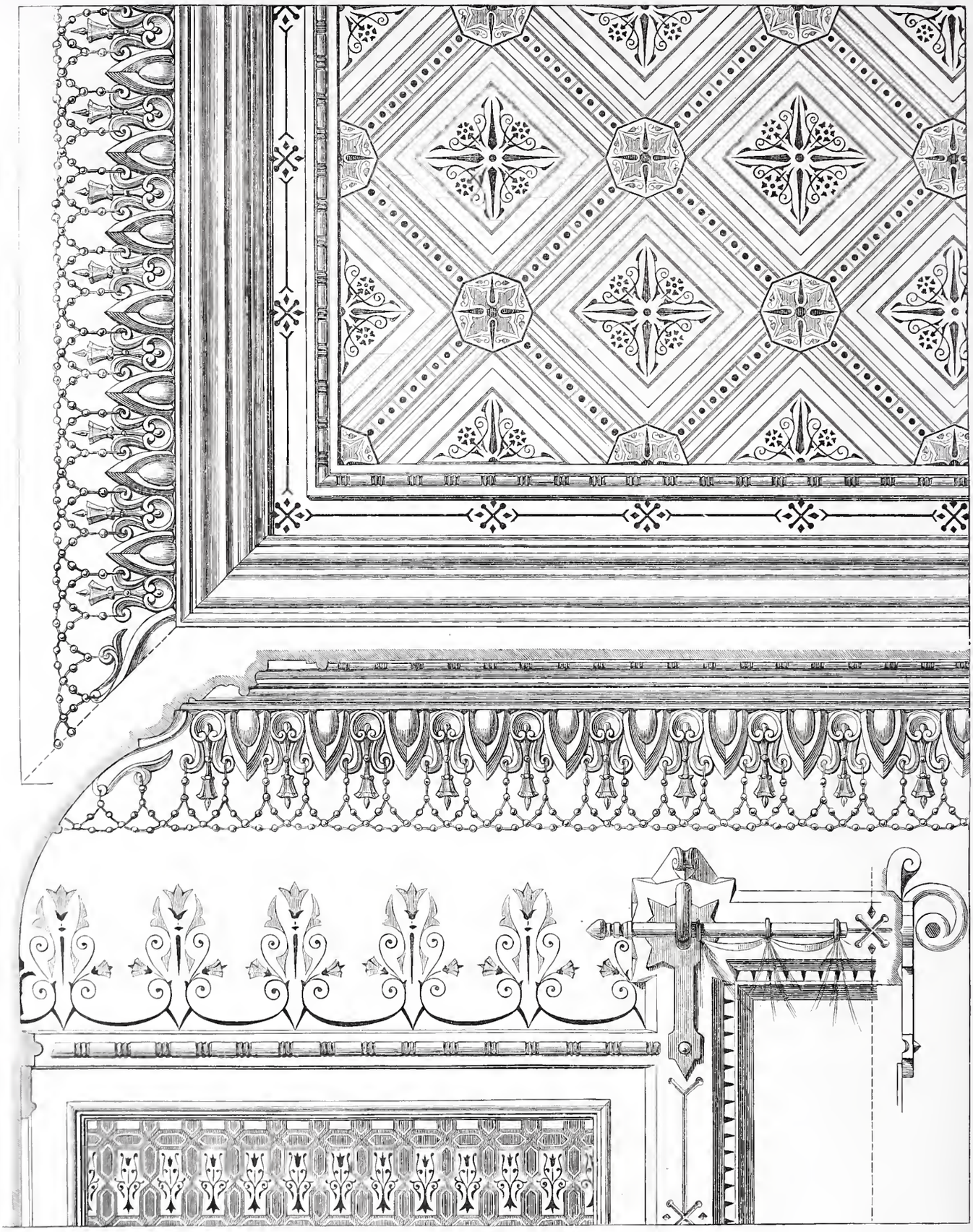


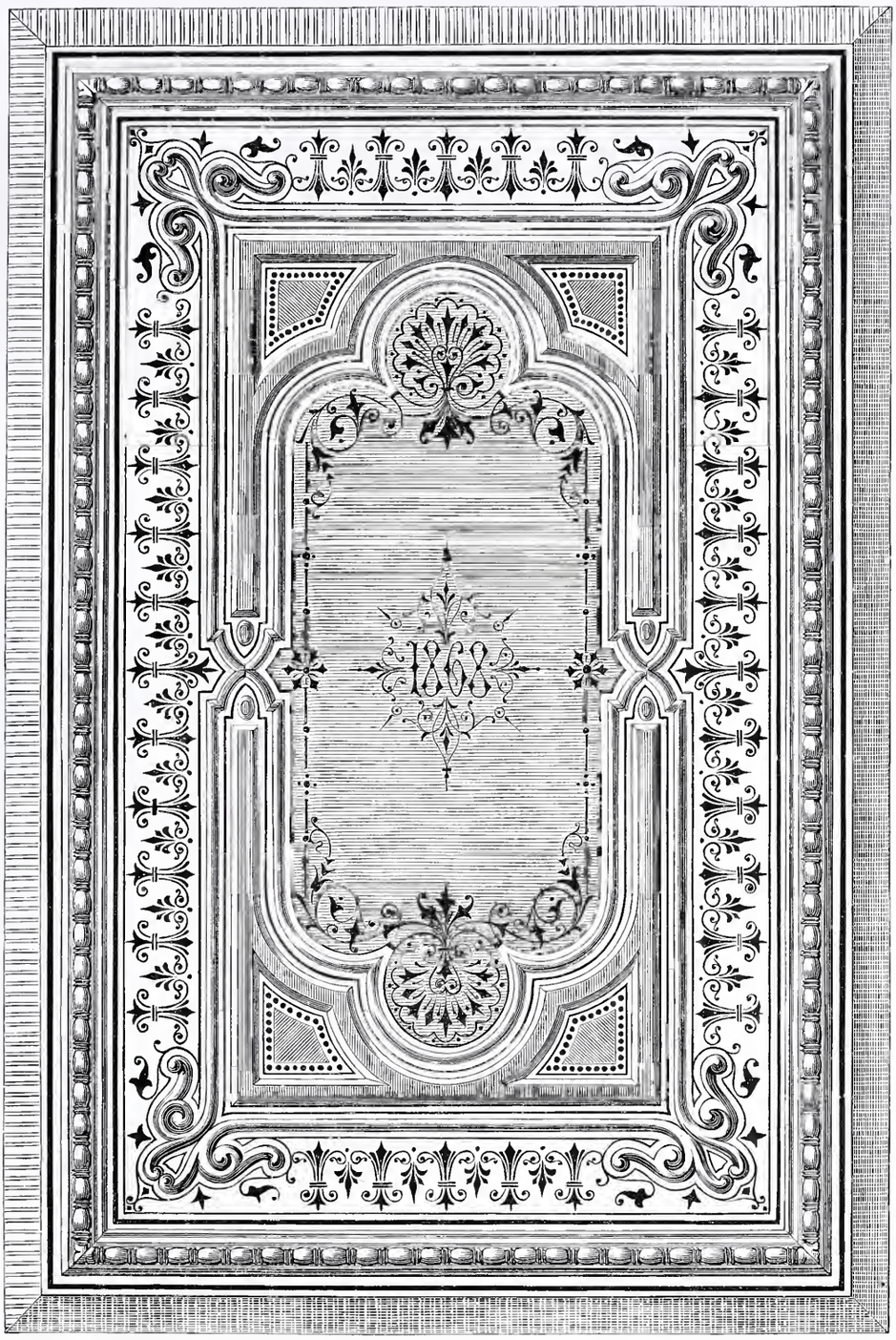
No. 10.

No. 11.

Nos. 8—11. Small Pillar Caps, under springing of arch; No. 9, in imitation of the Rhenish type of Romanesque capitals.



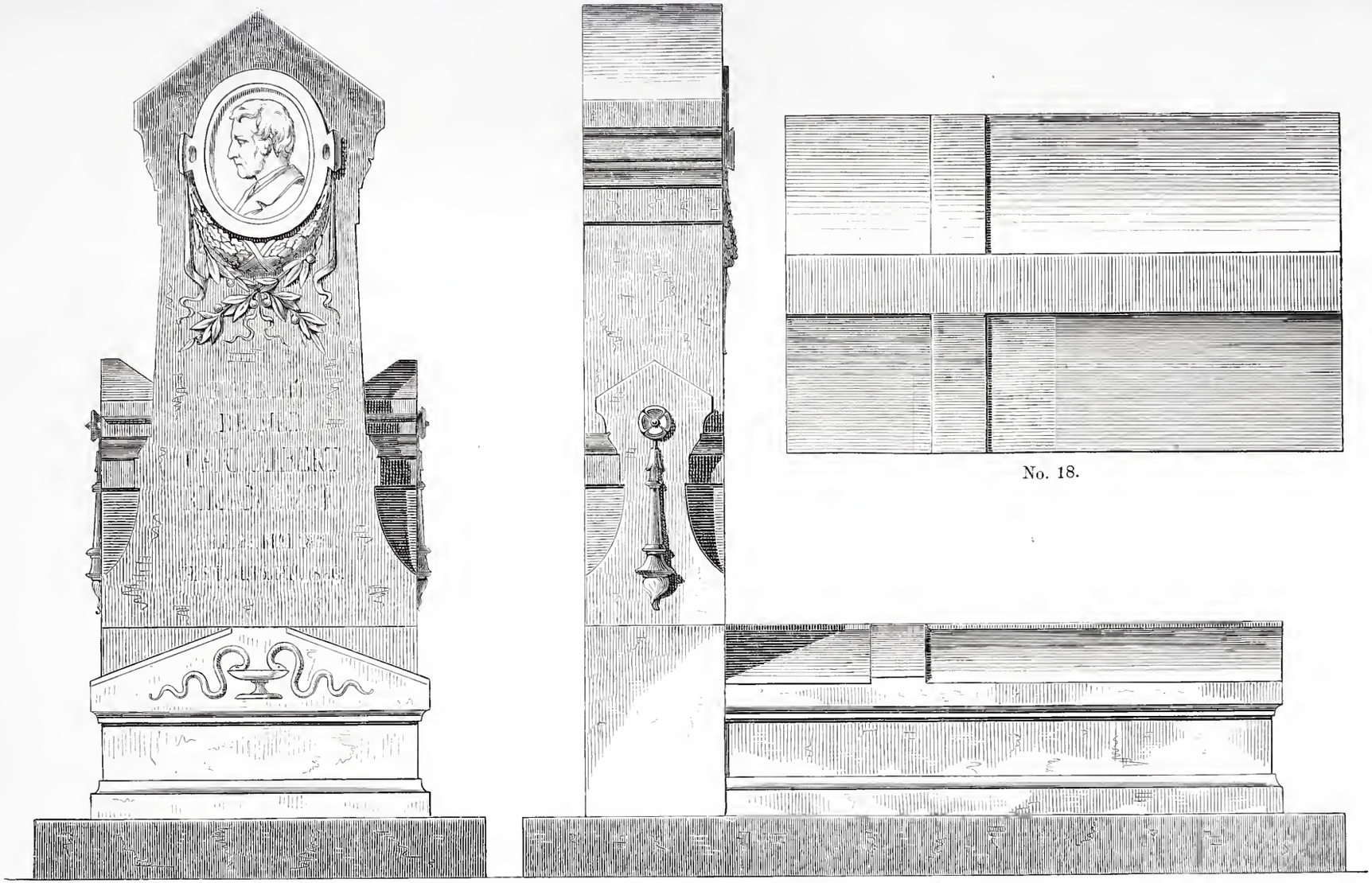
Nos. 12 and 13. Ceiling and Wall Decoration, with door-dressings and hangings. — M. P. Bénard, Archt. Paris.



No. 14.

No. 15.

Nos. 14 and 15. Design of Book-cover. Back and Cover, both simply treated, show mat bead-rolls, the border in gold-relief, the inner framework embossed, the centre *guilloché*. Mr. J. Schnorr, Stuttgart.



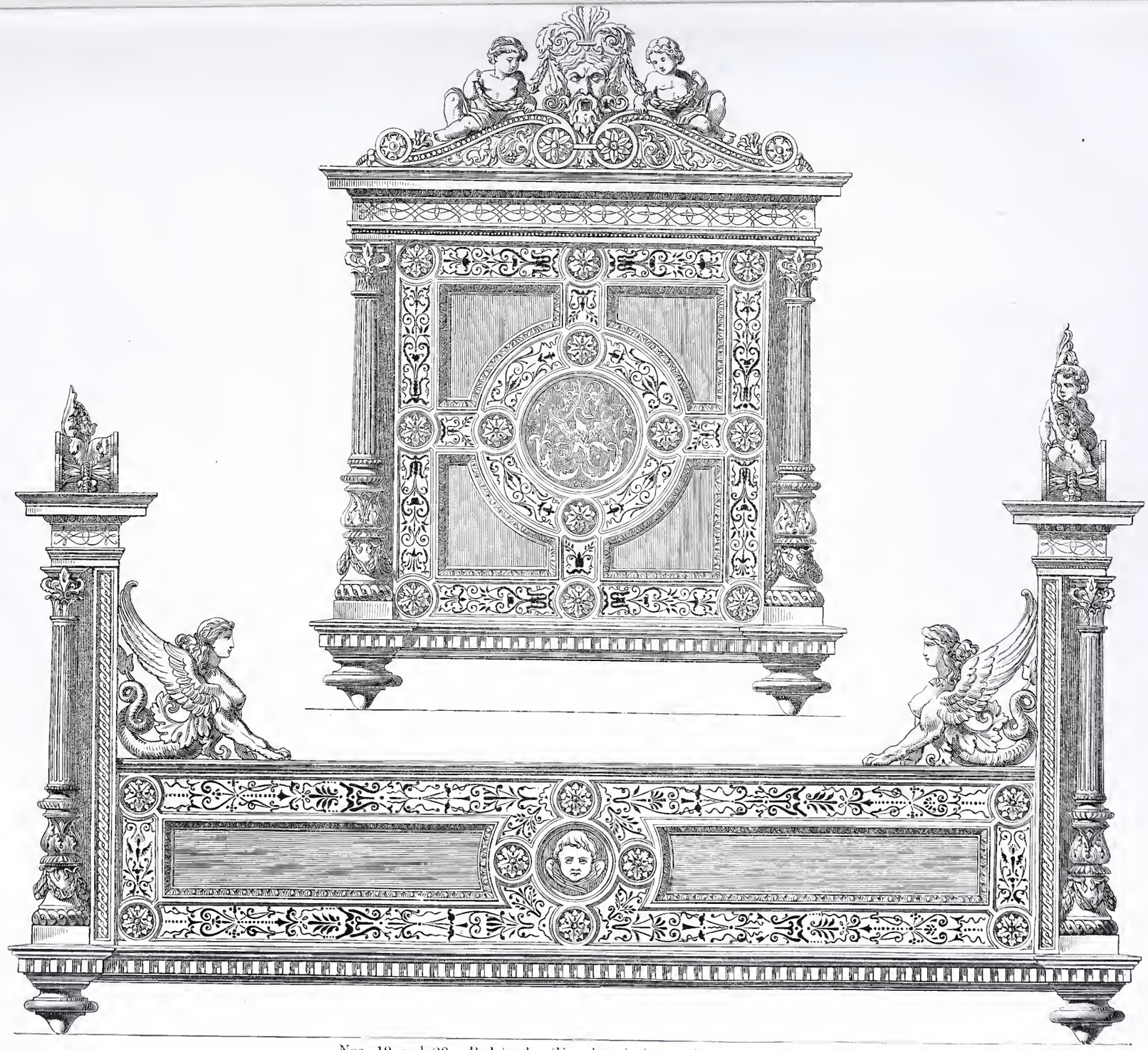
No. 16.

No. 17.

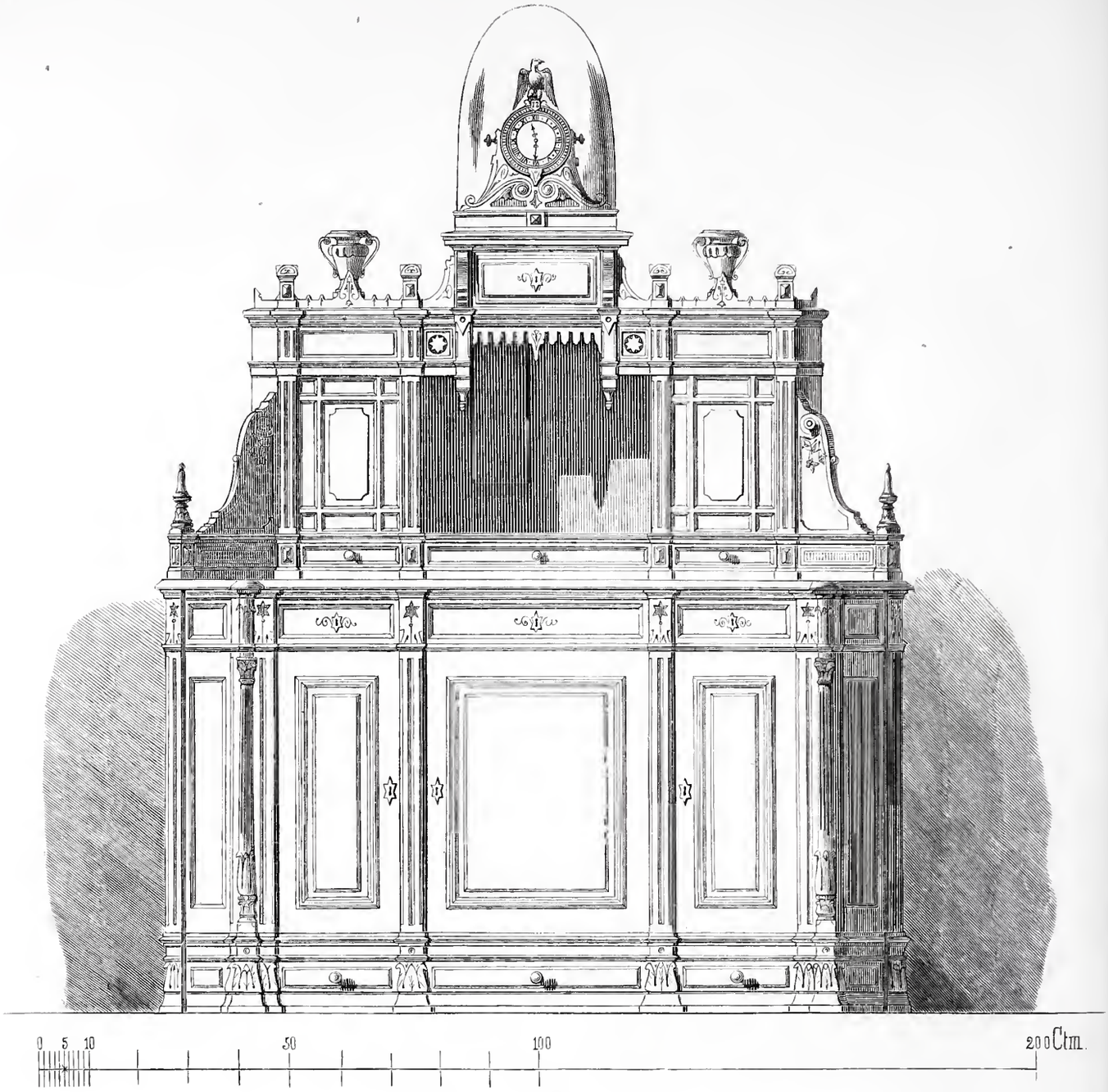
No. 18.

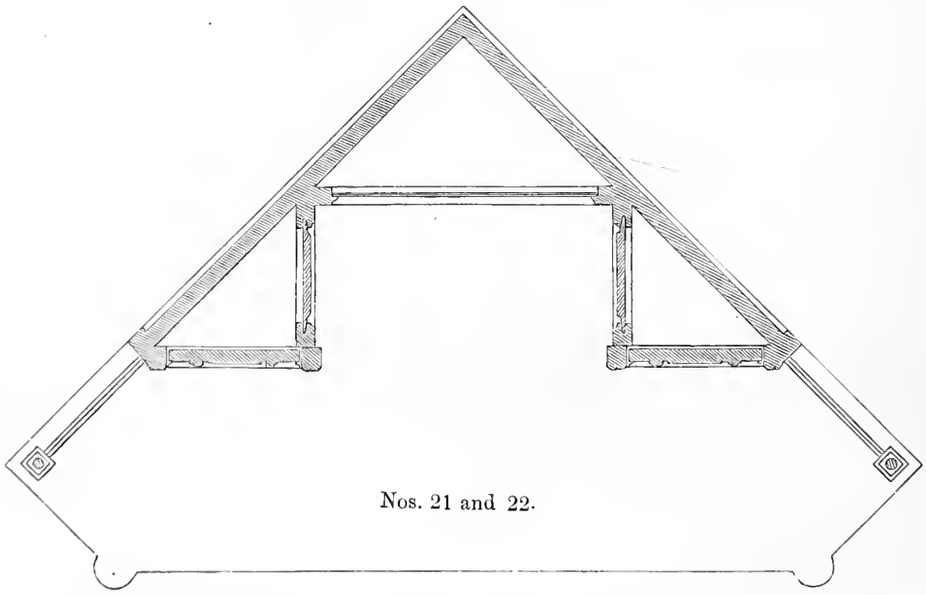
Nos. 16, 17 and 18. Sepulchral Stone for a physician; the monument, worked in sandstone, shows a marble medallion in the upper part. Mr. Dollinger, Archt.

Nos. 19 and 20. Bedstead, designed in the style of early Italian Renaissance; the ornamental framework in light yellow wood with black inlay in imitation of the marquetry of the fifteenth and sixteenth centuries; the panels in dark-brown wood, centre medallions, roses, and frieze of cornice, dark-brown with light design, carvings being also light brown. — For details see No. 1 of Supplement.

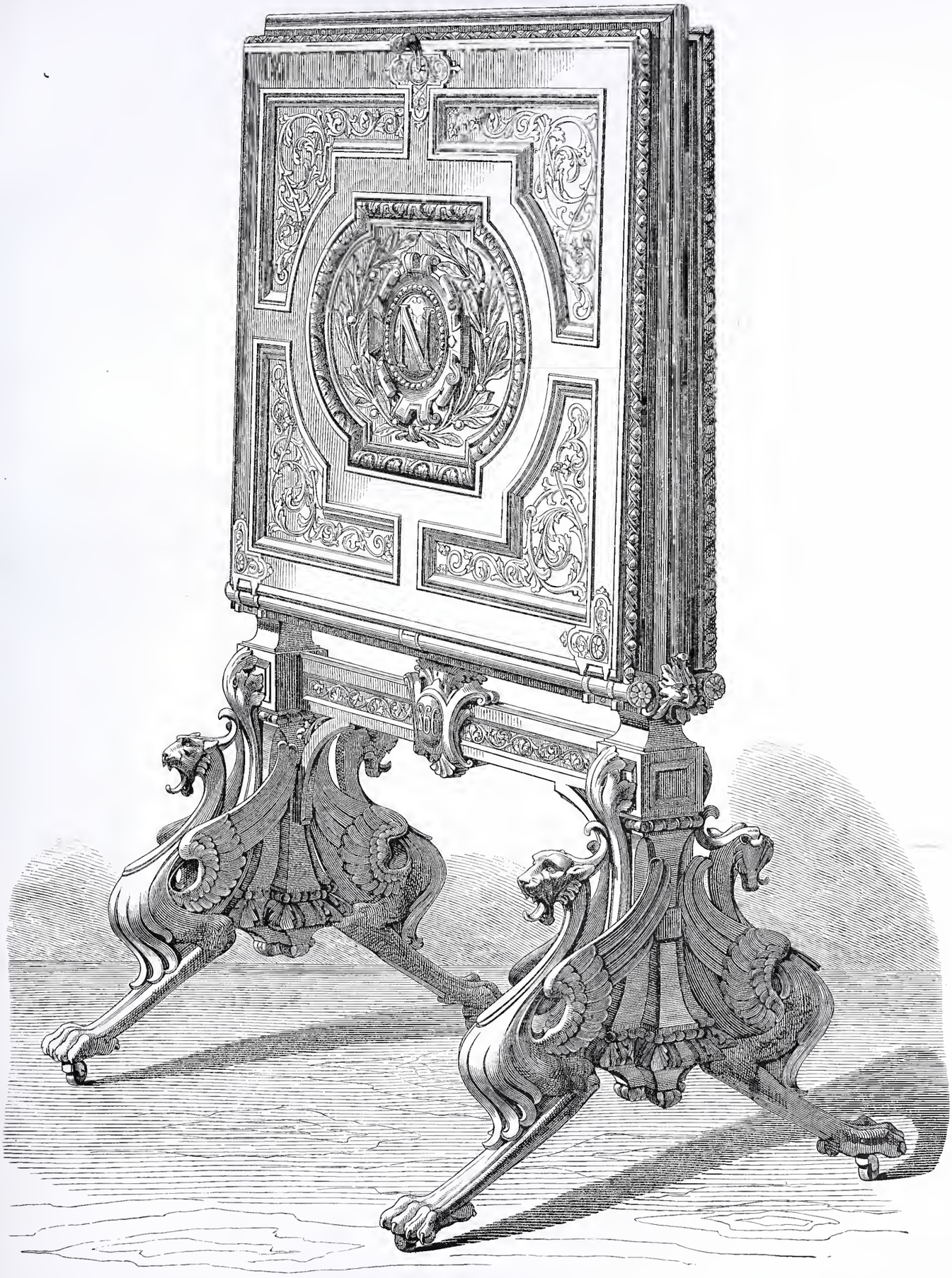


Nos. 19 and 20. Bedstead. (For descriptive notice see p 170.)

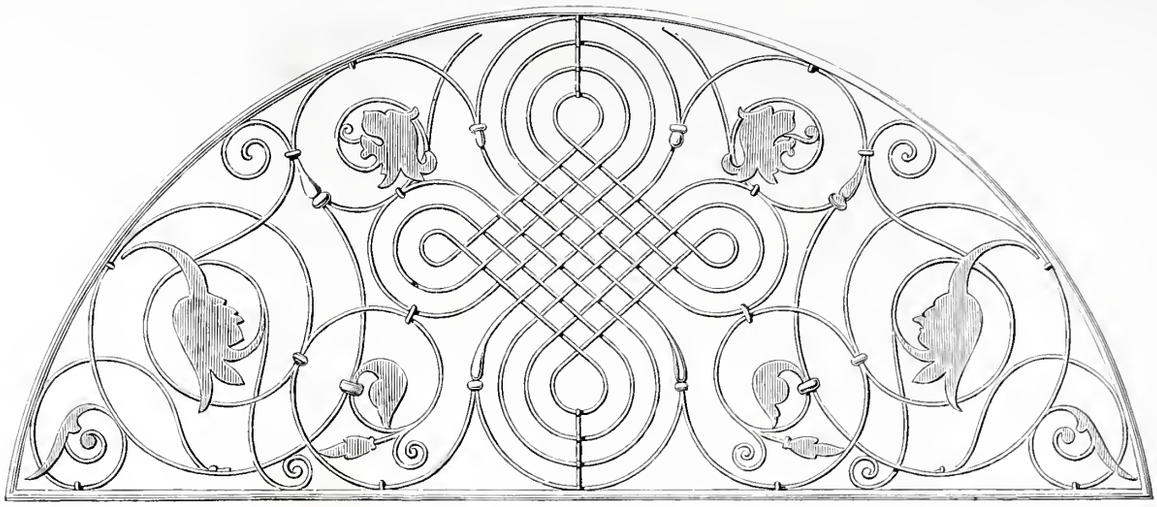




Nos. 21 and 22. Triangular Side-board in polished oak, astragals, chamfers, and ornaments, stained black. — For details see No. 4 of Supplement.



No. 23. Portfolio-stand for drawings and engravings.



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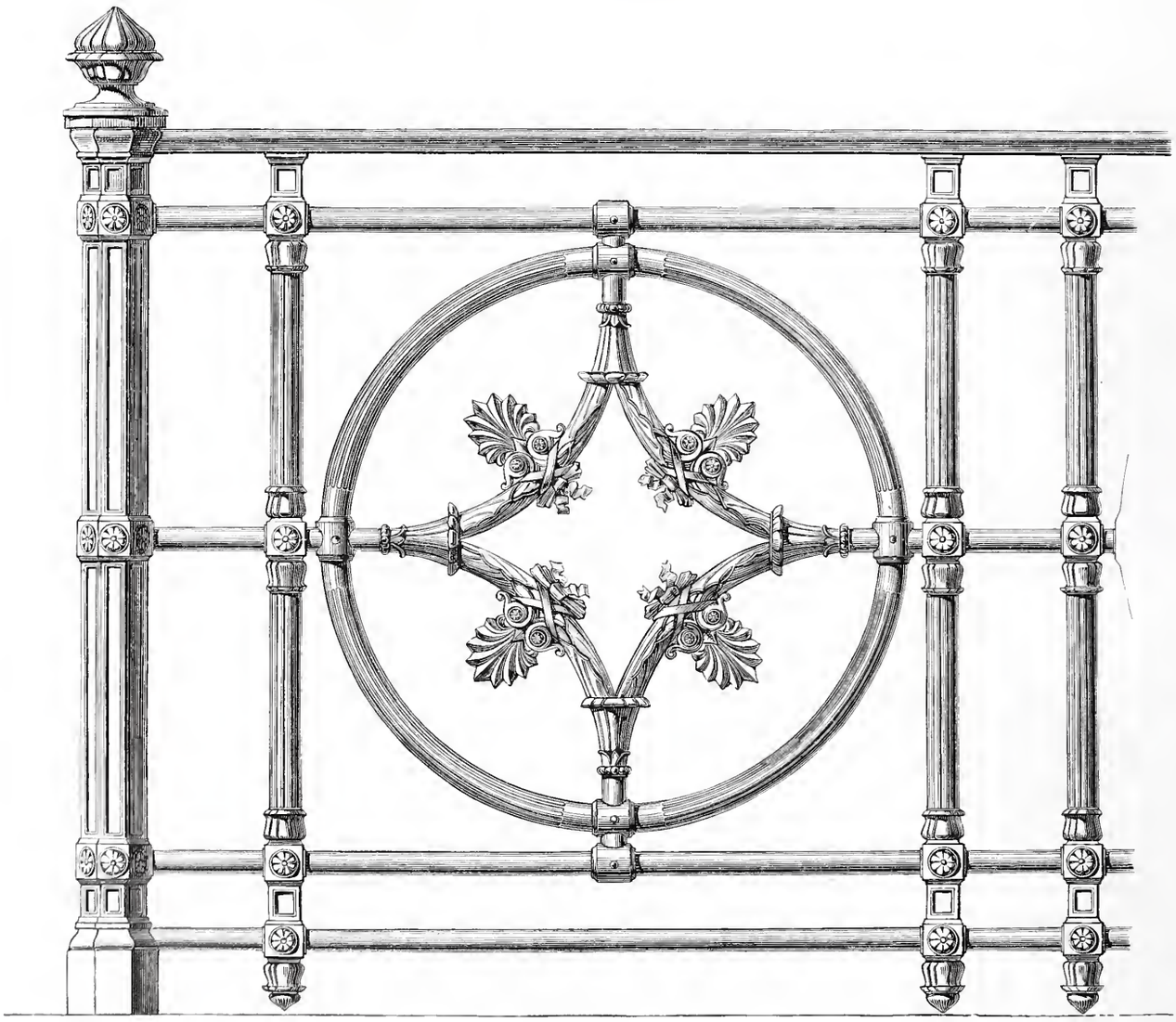
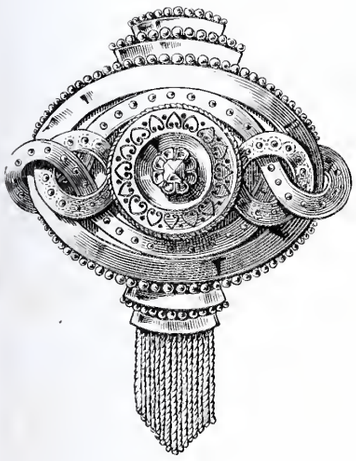


No. 25.

No. 24. Wrought-iron Grille for upper part of a house-door in Prague. Seventeenth century.

No. 25. Cast-iron Balustrade of the new Railway-bridge Mannheim-Ludwigshafen. Mr. Richard, Archt.

No. 26.



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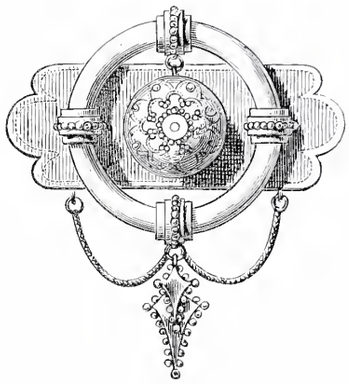
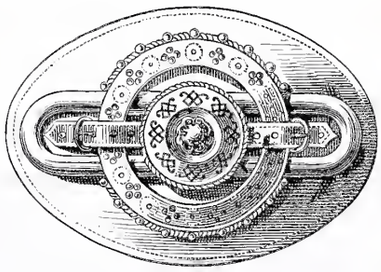


No. 28.

No. 30.

No. 33.

No. 31.



No. 29.

No. 32.

No. 26. Modern Vase.

Nos. 27—33. Modern Jewellery; three brooches and four ear-pendants with pearls, precious stones, and enamels; manufactured by Mr. G. Ehni, Stuttgart, for export into Havannah and Mexico.

No. 34. Ornamental Gable-end in timber.

VARIOUS.

The Holy Sepulchre.

The works for the reconstruction of the cupola of the Holy Sepulchre, which have been carried on with extreme rapidity, appear to be approaching their termination. At the end of last year the iron ribs were completed, and the lantern placed on the summit. An idea could then be formed of the elegant proportions of the new dome. The previous edifice, being too flat, had a heavy appearance. The present cupola, being about 6 ft. higher, and surmounted with a cross, rises more conspicuously above the surrounding buildings.

The Kinescope, a New Photographical Bijou.

M. M. Langlois and Angiers of No. 14, Rue de Castiglione, Paris, have constructed a clever little apparatus, to which they have given the name of Kinescope, showing objects in relief and in motion. To show them in relief does not require couples of dissymmetric photographs, as those used in this apparatus are microscopic, and each of the photographs is separately shown in relief. The movement consists only of two different positions of the subject, the first and the last, without passing through the intermediate positions, so that two images only are necessary. The apparatus, thus amazingly simplified, is contained in a small oval locket, the greatest length being about 7/8 in., and the two photomicroscopic cylinders are placed in the centre of and perpendicular to the face of the breloque. They represent the same object in two positions, and the effect of change of position is obtained by a very simple mechanism. The two photomicroscopic cylinders are placed in a vertical guide, surrounded by an india-rubber membrane, on which rests a vertical pin, terminated by a small button on the top of the locket. For instance, in the locket we examined, on looking through the central aperture, the normal state of the apparatus shows a little child holding in its outstretched hand an india-rubber ball, which he contemplates with evident pleasure, the head being bent towards it.

But, if the button be pressed down with the finger, the force exerted on the caoutchouc changes the relative position of the cylinders, and the first image disappearing, the second image is brought to view, showing the ball thrown up into the air, while the head is thrown back to watch the movement of the projectile. If the motion of the finger be rapid enough, the images succeed each other instantaneously; and, owing to the persistance of images on the retina, the illusion of the child tossing up the ball is perfect. Thus, by this very ingenious idea can be produced the effect of a distant or departed friend appearing full of life,

The Builder.

Electro-Iron Deposits.

The *Scientific Review* discusses at considerable length the new scheme of producing, or rather depositing, iron by electricity, which has occupied the attention of French and German experimenters for several months.

There is a great desire to keep it a secret; but the process is supposed to be analogous to the electrotype. The iron so produced is not nitrogenous, but pure. It will withstand the action of hydrochloric acid or sulphuric acid in the cold, and will, therefore, not rust in the open air. It is of a clear grey color, and takes a fine polish. With a weak current of a single Daniell cell, iron two millimètres thick is easily deposited in a fortnight.

The Workshop.

A Monthly Journal, devoted to Progress of the Useful Arts

EDITED BY

PROF. W. BAUMER, I. SCHNORR AND OTHERS.

VOL. I. No. 12.

CRYSTAL MANUFACTURE AND JEWELLERY.*

The representation of figure subjects in flat treatment was not attempted, which may be accounted for by the difficulty of their execution; but plastic figures very often contributed to the decoration, thus giving rise to a new style of enamel-work, i. e., that *en ronde bosse,* in which opaque and translucid enamels were both used, the latter being, during the good period, the more prominent part of the composition. To attempt an exact rendering of nature has always proved a dangerous undertaking in the realm of Art; and it is characteristic that in the earlier and purer periods only conventional coloring was used. So also in this branch of art; for with a clear perception of the difficulty of rendering the delicate modelling of the body in enamelwork, the nude parts were chased in gold, and it was only with the advancing mannerism of composition and the decline of art at a later period, that polychromic treatment was introduced. The metal being entirely covered considerably increased in weight, for which reason Francis I prohibited the employment of this enamel by a decree which however was soon revoked at the intercession of Cellini. The most appropriate feature for the use of opaque embossed enamel was the handle of the vase, in the design of which, as in crystals, the artistic genius is allowed free scope, by creating innumerable variations of the same ornamental motive, and combining both beauty and fitness of form. Frequently we see blue enamelled snakes, with extremely fine gold scales, twisted into a handle or at least encircling it. The Florentine Uffizi Gallery shows a tazza, the handles of which are formed by green enamelled fishes, and another vessel which may be considered as the most perfect type of its kind, satyr-figures being wrought into handles. These Satyrs or Syren-figures, often provided with beautifully variegated wings, and in their most minute details modelled with the greatest care and finish, are generally the most characteristic feature of the whole vessel.

The nude parts especially, which are free from enamel, evince a careful study by the goldsmith of the time, further corroborated and illustrated by masks which frequently occur, applied to foot or spout in imitation of the Antique. A rich coiffure, and colored garlands of flowers and fruit often surmount Fauns heads and masks. Complete figures, when represented, are usually affixed to the lid, thus elegantly finishing and crowning the whole vessel. St. George fighting the Dragon was a favourite subject for representation, and one specimen of the Vienna Treasury may serve as the model of a great series of similar works. The knight in blue doublet and armour, rather in the antique style, is thrusting his spear into the jaws of the monster crouching at his feet. The dragon is beautifully conventionalised, and covered with green, black-spotted, opaque enamel. The bare parts are also coated with opaque enamel of a bluish hue, and every feature of the face, and detail of helmet etc., are worked with infinite care and precision, although the modelling is here and there necessarily exaggerated in order to mark the forms through the thick coating of enamel.

A similar treatment of design and coloring is illustrated by like representations of the same time; e. g., St. George encased in a round medallion at Stonyhurst College; and above all the order of St. George, perhaps the costliest relic of this kind, now in possession of a Bohemian nobleman, the specimen exhibited in the *histoire*

* See p. 161 *ante*.

du travail at Paris, in 1867, being most likely of modern imitation. In a general way opaque enamel is used; in a few instances only translucid enamel being applied. Here we may mention a beautiful figure, crowning a double goblet of agate, and representing an excellently worked flower-girl, whose garments are in green and blue transparent enamel, while the skin is left in gold tint. It is in the possession of the Vienna Treasury already alluded to on account of its richness in similar works of Art.

Such figures were often worn on chains as ornaments for personal use. On festive occasions they were favorite and valuable gifts, called *faveurs,* which were added to the family treasures during many generations. At the time of Cellini it was the fashion to wear enamelled figures in high relief on lapis lazuli, or other mineral or stone, which served especially to decorate belts and bonnets.

In the same category may be ranked the *forgo,* an ornament of the Hungarian *kalpak,* some specimens of which are preserved in the collection of the Teutonic Order at Vienna, and show excellent Italian and German workmanship. Besides the enamel *en basse taille* and *ronde bosse,* above referred to, other kinds were practised although less frequently, in Italy and France. Thus we remark in the casket of Clement V in the Uffizi, the exquisite frieze ornaments, framed by filigree work, and filled in with enamel; and the beautiful crystal cup with the monogram of Diana of Poitiers in the same gallery illustrates the employment of a particular sort of enamel, incrustated in crystal. This art has been recently revived, and its re-introduction by M. Hubert, the excellent Artist of the Parisian firm Froment-Meurice, who exhibited some specimens in the exposition of 1867, may be pronounced an entirely successful attempt.

Together with enamel-work the precious stones, cameos, and pearls, greatly enhance the works of the goldsmith and jeweller; and it cannot be sufficiently pointed out what an excellent style of mounting and setting the artists of the Cinque-cento period employed, in comparison with that of our modern workmen. It is not the manner of foliation which we here allude to, although at Cellini's time the process was one of great refinement, but rather the Artistic combination of stone and ornament which is so effective in the works of the old masters. The truncated pyramidal blocks, arranged in six or eight at the foot of the vessel, and supporting the stone, received generally four black enamelled sides in order not to mar the color of the stone. Many rings of the Renaissance period, a good many specimens of which are dispersed in our museums, are most excellent examples of a judicious employment of precious stones, although it must be admitted that many of these bijoux are of dimensions which might appear too large for our modern taste.

Equal judgment was evinced in the setting and arrangement of pearls, representing, e. g., fruit or flowers, interspersed between enamel leaves; but sometimes they were affixed as mere appendages to vessels of state, and on this account must often be carefully manipulated.

Pearls of different shape, and some rather large, have found a peculiar, but generally not very successful application by forming the ground work of little figures etc., richly mounted in gold. Unfortunately even a master hand is unable to make good use of such shapeless formations unless very much favoured by chance. Thus these works will always remain mere objects of curiosity which scarcely offer sufficient inducement for copying.

Italy, as already stated, was the cradle of modern enamel and jewellery, fostered also almost simultaneously in France, where unfortunately after a most brilliant and flourishing time, many prohibitions and restrictions soon led to their decline. Germany, as well as England, notwithstanding the later period of their development of these arts, produced also most excellent works by men who might vie with the best Italian masters. When enamel-painting became the fashion, translucid enamel had everywhere to give way. Though goldsmith's work and jewellery had still grand productions to show, they were rather coarse and of common workmanship, without the use of enamel; still it must be admitted that even these are well worthy of study for their conception and composition.

If in conclusion we cast a retrospective view on modern manufacture of translucid enamel, we may state that France, which started with a revival of this art, is most advanced in its application, her artists being perfectly aware of many advantages of practical execution, and thoroughly mastering the design. Against two extremes, often so prejudicial to true art, the modern goldsmith may guard by a judicious and assiduous study. Into the one he is enticed by servile copying, in an archælogical sense, of the sixteenth and seventeenth century-work, and trying to complete the illusion to the amateur, by coating the object with artificial patina; to the second he is led by non-observance of an artistic, conventional treatment of enamel in design and application, and by being satisfied with the display of brilliant workmanship and execution.

Naturally enough, goldsmiths following the first of these directions aim less at producing objects for practical use, than at filling the shelves of private and public collections with their works. Rudolphi and Duron in Paris vie with the Cinque-cento works by their excellent imitations, and a Vienna firm has likewise attained a certain reputation in this speciality.

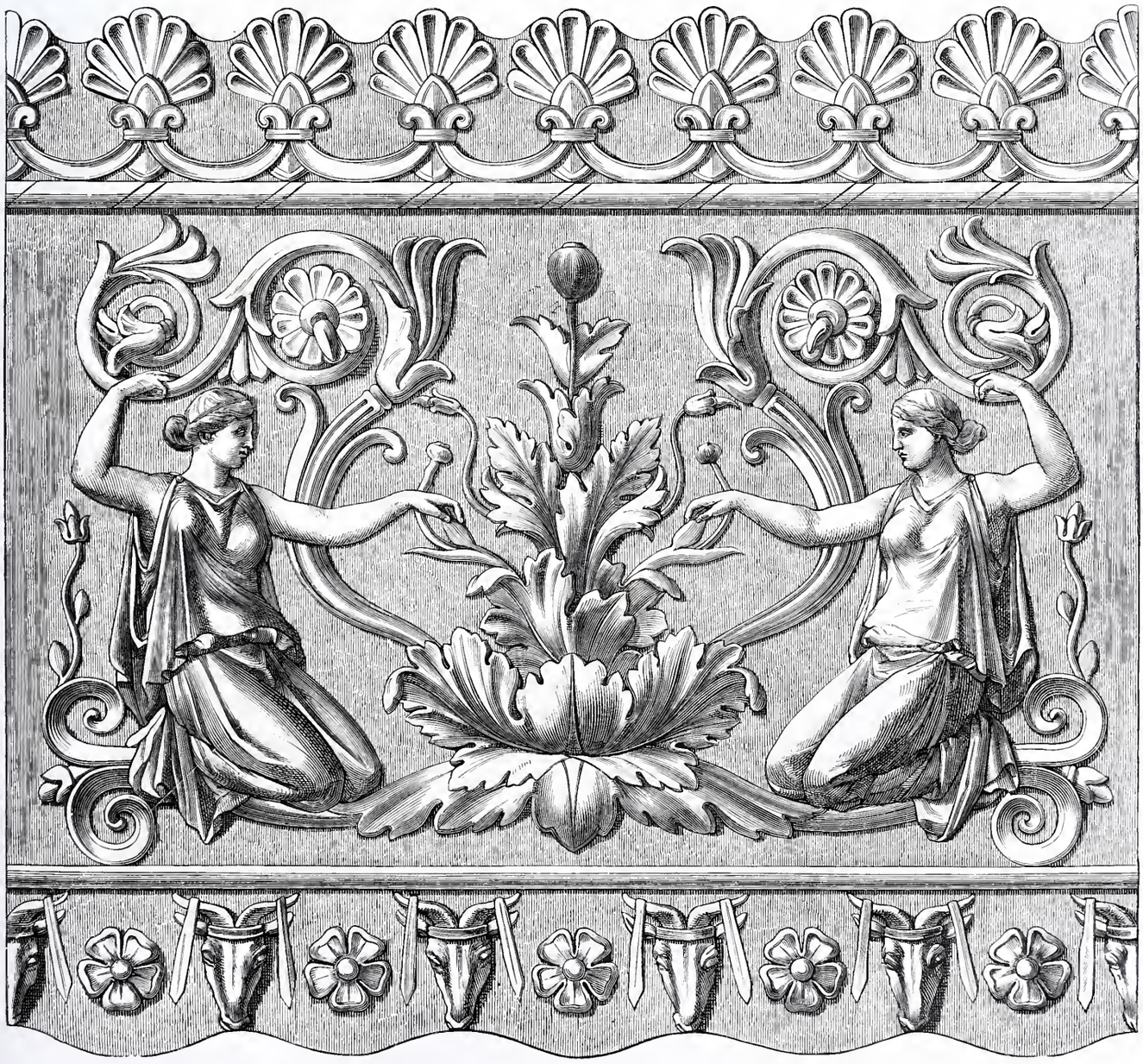
The ranks of the second category are filled by most of our manufacturers to whom fashion is the supreme law, being guided by her instead of being her guide; and it will be long before they decide on emulating the beautiful creations of old masters and profiting by the rich treasures of art which they have accumulated.

Only few pursue the happy medium, and amongst these Lepec in Paris takes a conspicuous place, although a severe critic might perhaps reproach him with a too extensive employment of opaque enamel.

It is certainly of rare occurence that an artist has

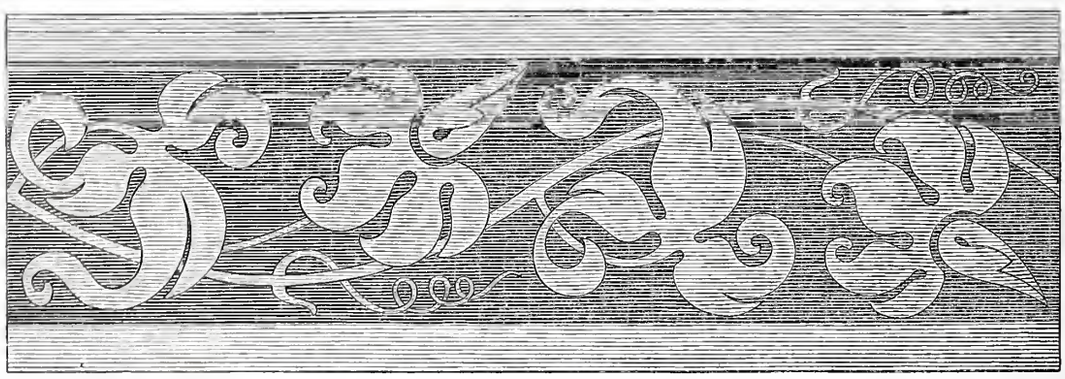
occasion in our time to execute great vessels of state in the style of those here mentioned; he is generally compelled to restrict himself to the production of smaller works, i. e., jewellery and personal ornaments, for which the Antique may also furnish excellent decorative motives; and the most successful and beautiful imitations of this kind by Castellani at Rome are worthy of regard. But if the task is to create a work of true Art of high conventional treatment, and to combine organically and harmoniously the gold with precious stones and enamel, then we can only rely on those grand principles of Art, to which the old masters have given form and expression in their magnificent works, the crystals and jewellery of good Italian Renaissance.

Specimens of Ornamentation.



No. 1. Greco-Roman Style. — Terra-cotta Frieze; 1/2 of real size.

No. 2.

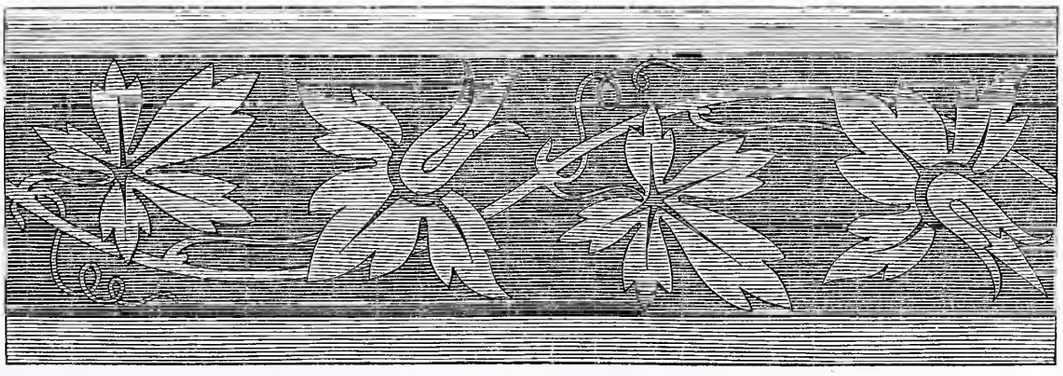


No. 3.

No. 2. Early Gothic. — Detail of Lintel from North Porch of Chartres Cathedral. Thirteenth century.

Nos. 3, 5 and 7. Arabesques in Embossed Leather; from old bookcovers of the sixteenth century. Leaves and flowers fill the four angles of a square, thus producing a regular distribution of the main features.

No. 4.



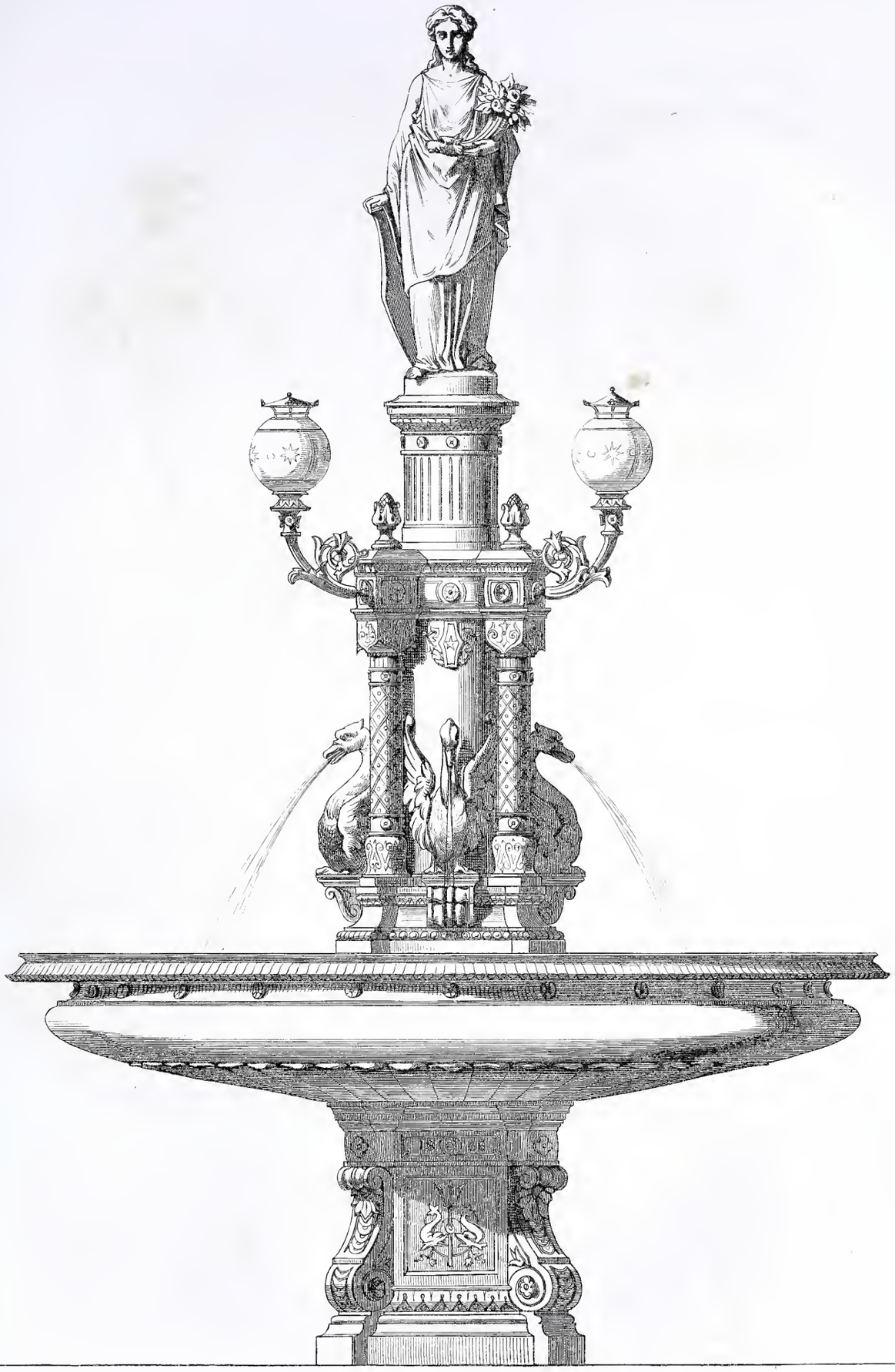
No. 5.

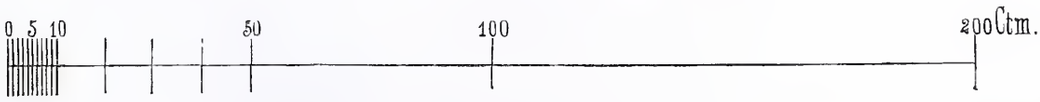
No. 4. Decoration for Pottery, designed after Etruscan models.
Ground-color black; horizontal shading brown-red, dotted parts yellow, remainder white.

No. 6.

No. 7.

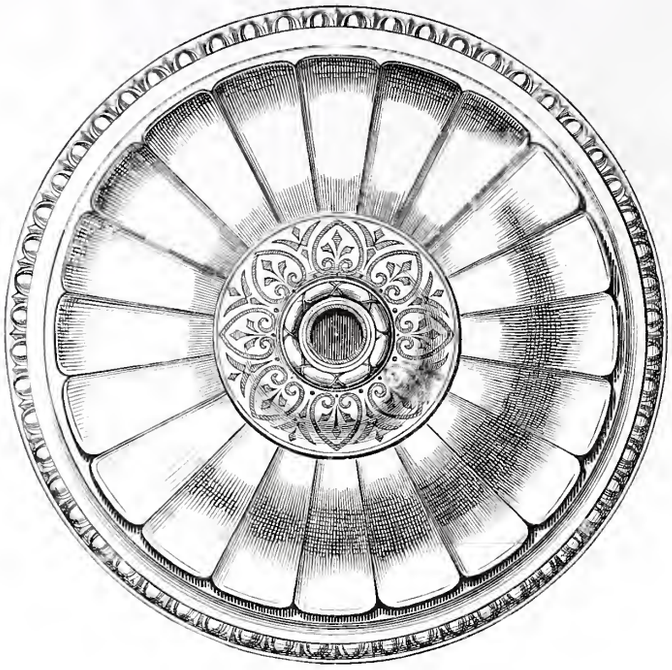
No. 6. Pattern for Hangings; designed after an incised ornament in metal-ground from a clock-case of the seventeenth century.

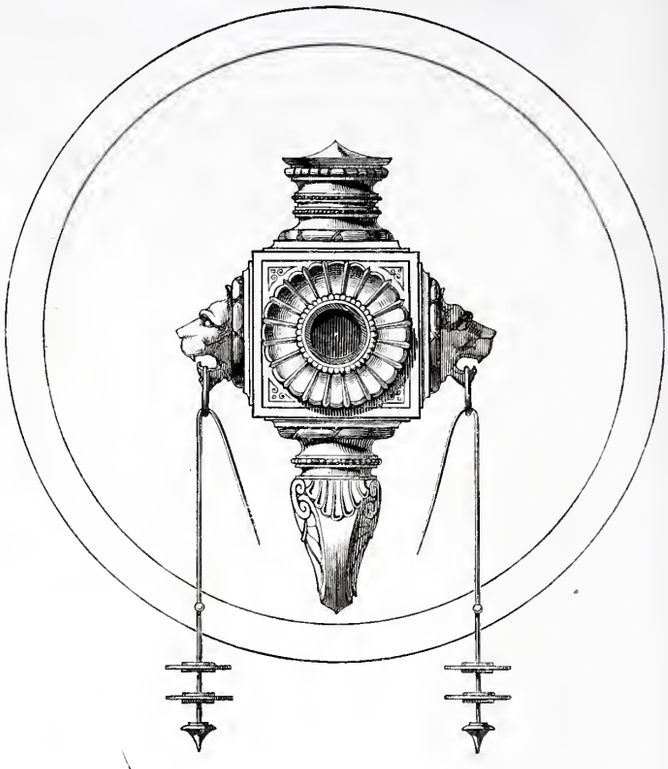


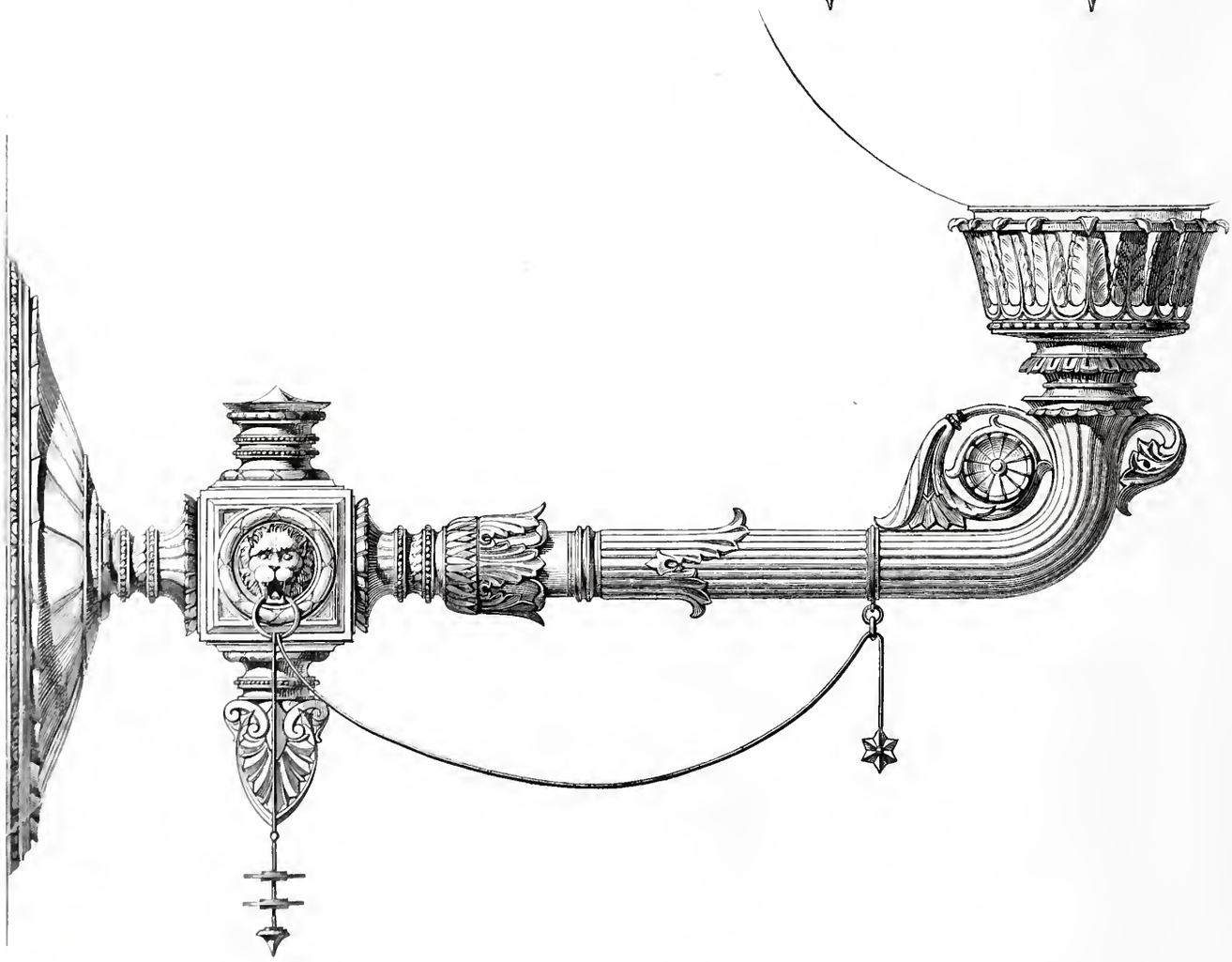


No. 8. Cast-iron Drinking Fountain. — Mr. Dollinger, Archt.

For plan of fountain see Supplement, No. 4.

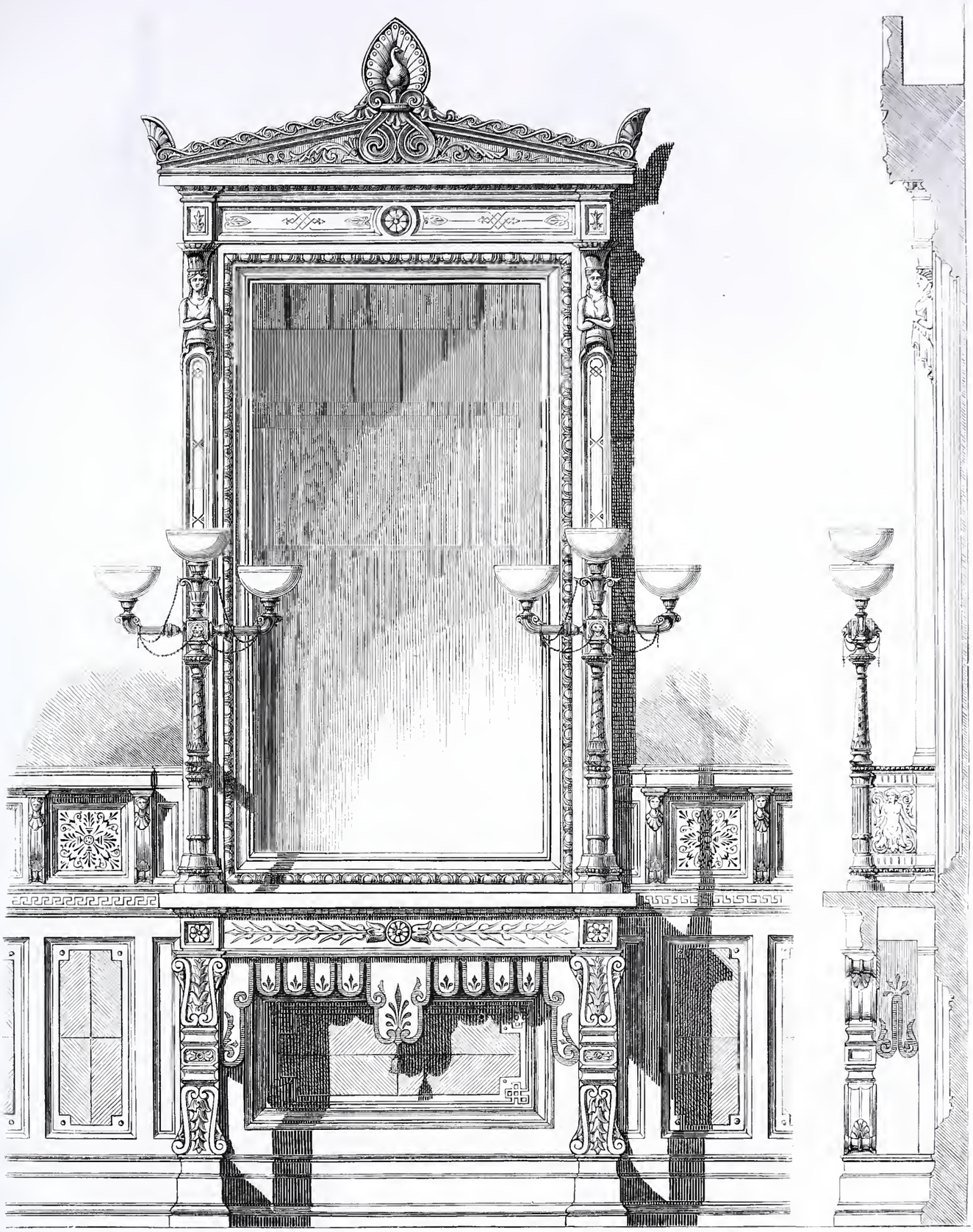






Nos. 9—11.

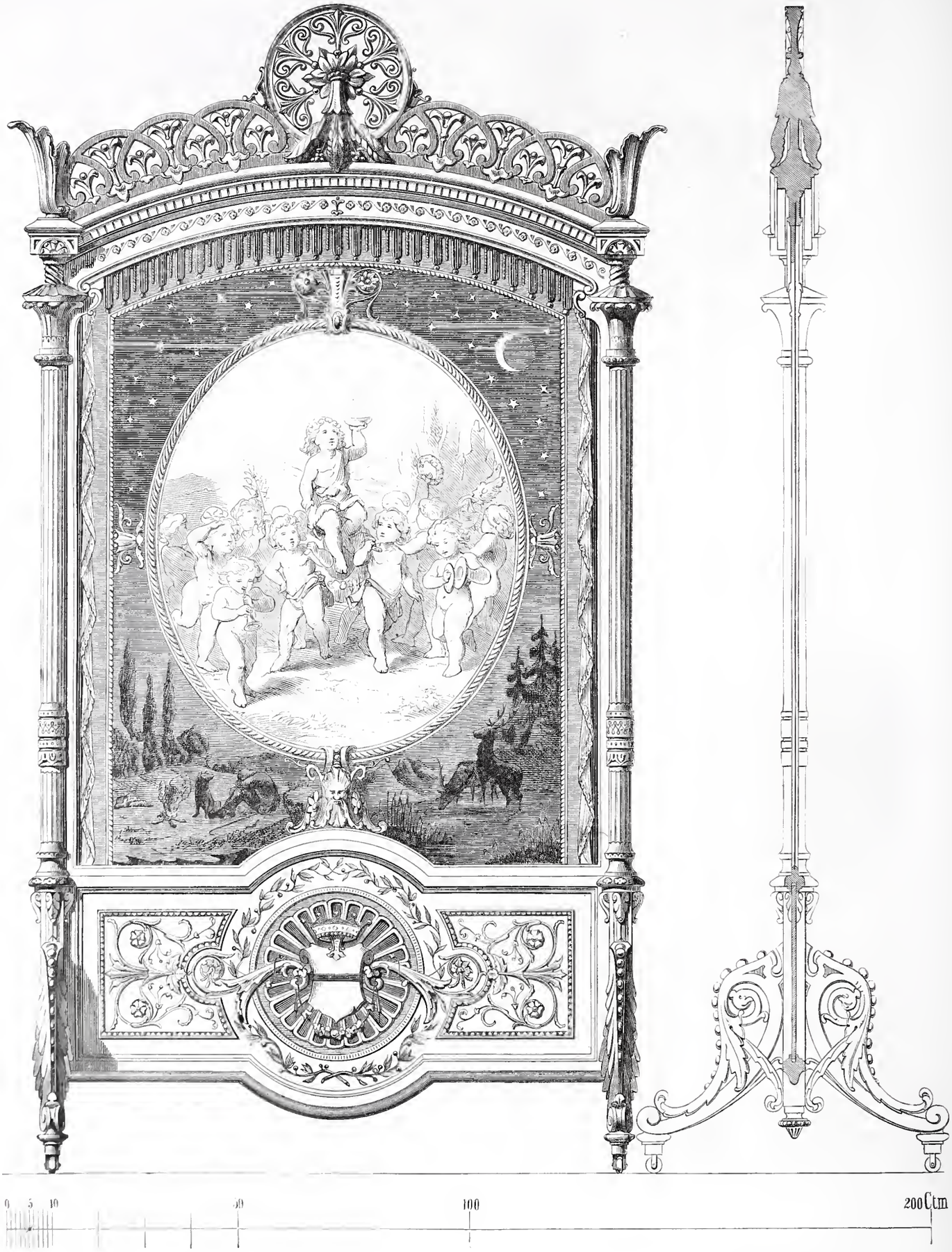
Nos. 9—11. Bronze Gas-bracket; 1/2 of fullsize.



No. 12. No. 13.

Nos. 12 and 13. Pier-glass with Console Table. Front-elevation and section.

The slab in light marble; carvings in oak; ornaments in gold with the exception of the egg- and tongue ornament. the two capitals and consoles; the scallops white, bordered with green; the upper frieze-ornament red; the bronze candelabra in the style of gas-bracket in No. 9. For details see No. 5 of Supplement.

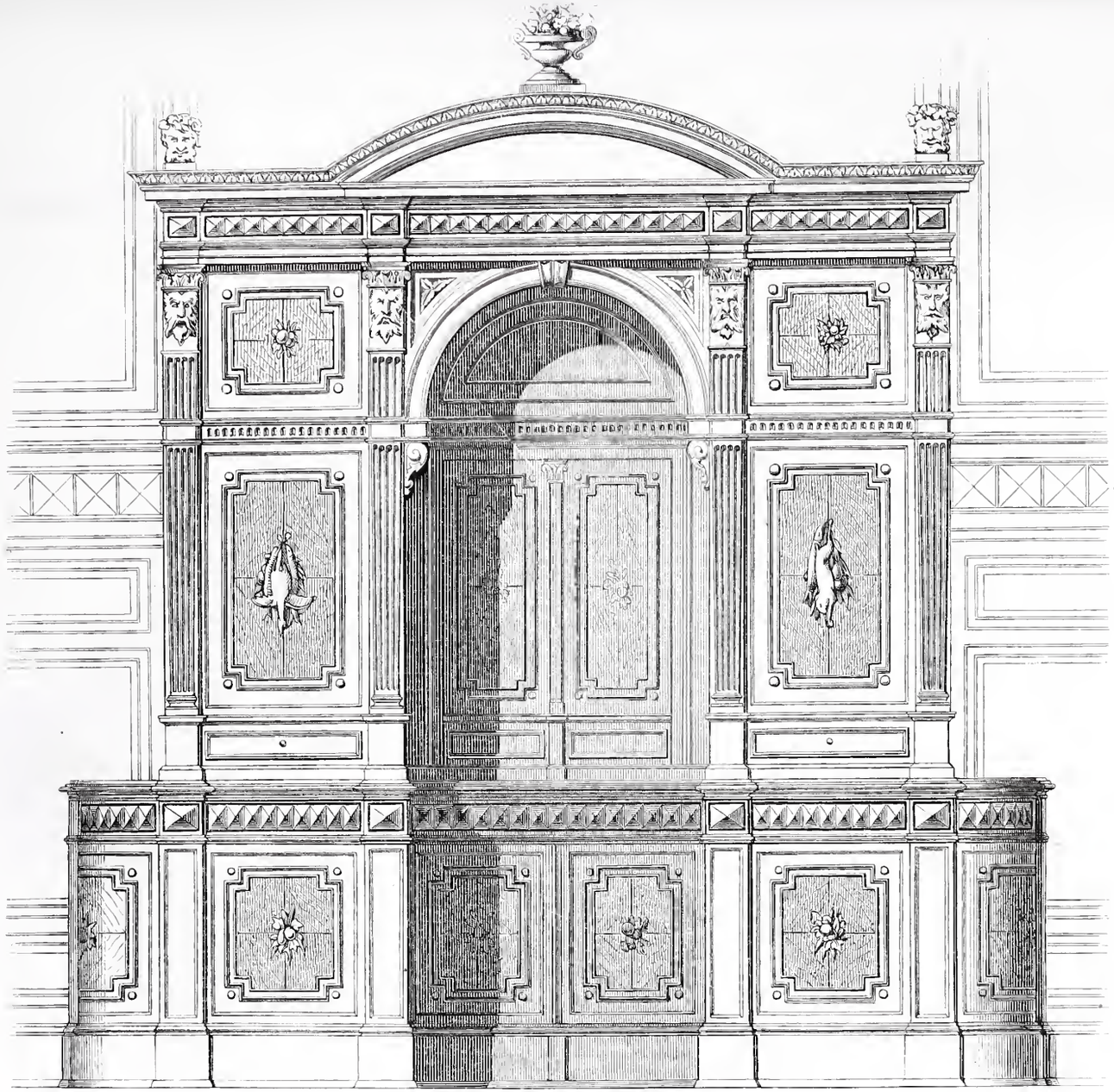


No. 14. No. 15.

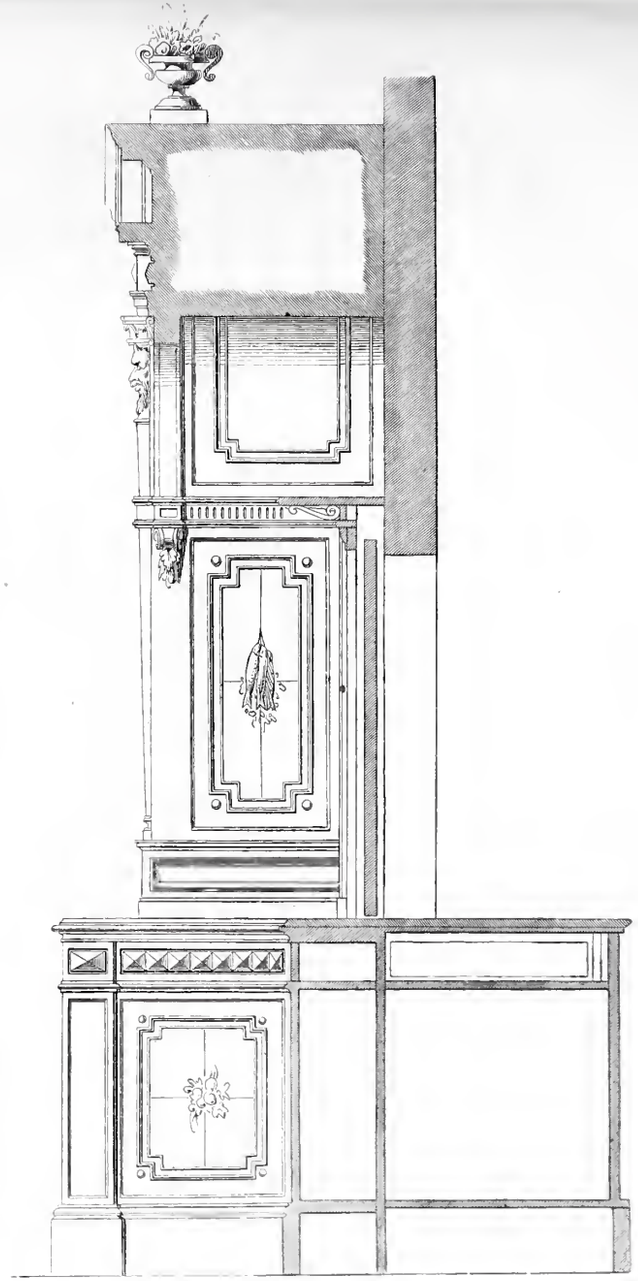
Nos. 14 and 15. Fire-screen. Elevation and section.

The frame gilt; the screen either painted in various colors, or embroidered, the under part showing a medallion with armorial bearings on blue ground; the laurels painted, the ornament gilt.

No. 16. Arm-chair. For full-size details see No. 1 of Supplement.

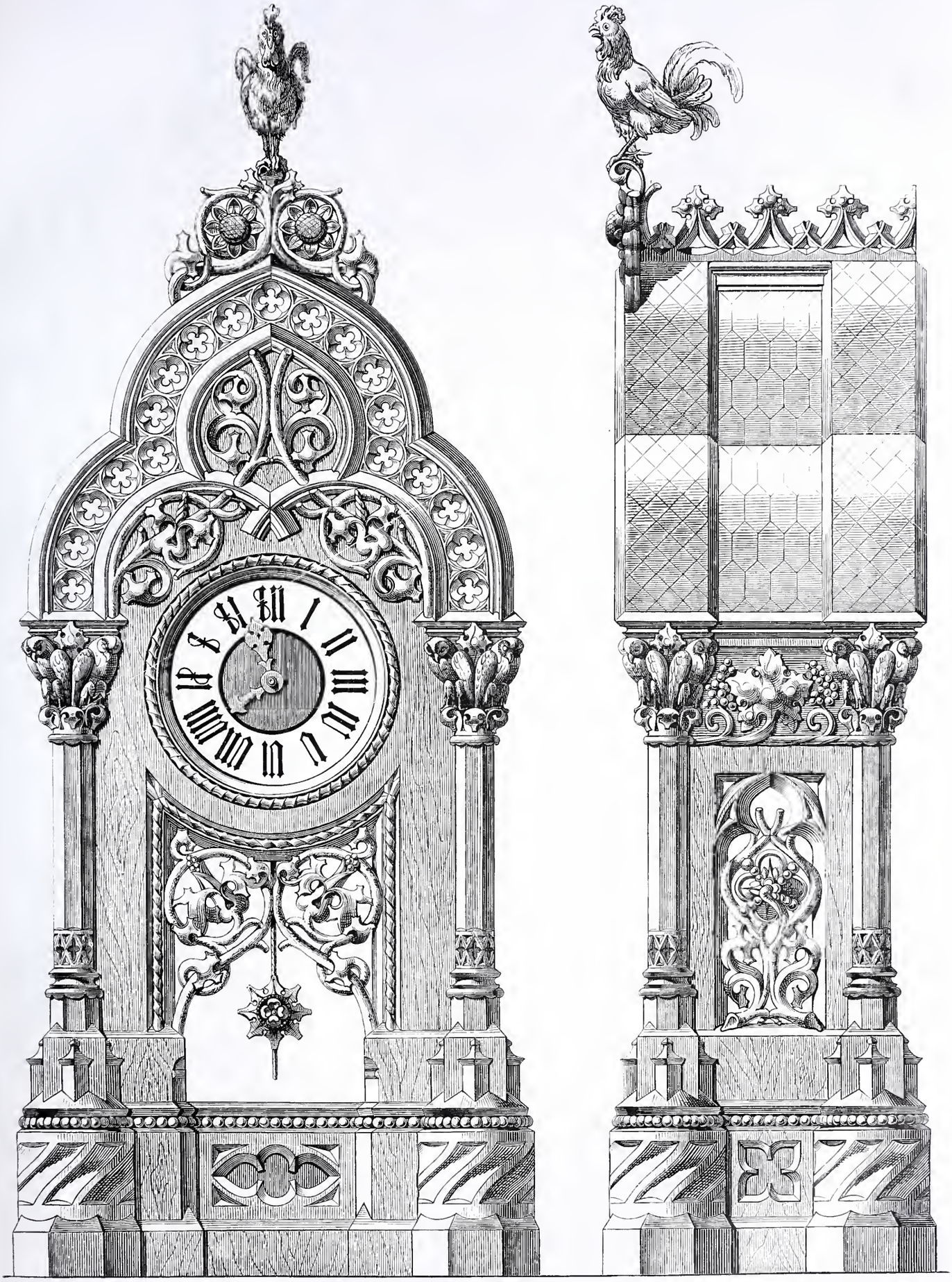


No. 17.



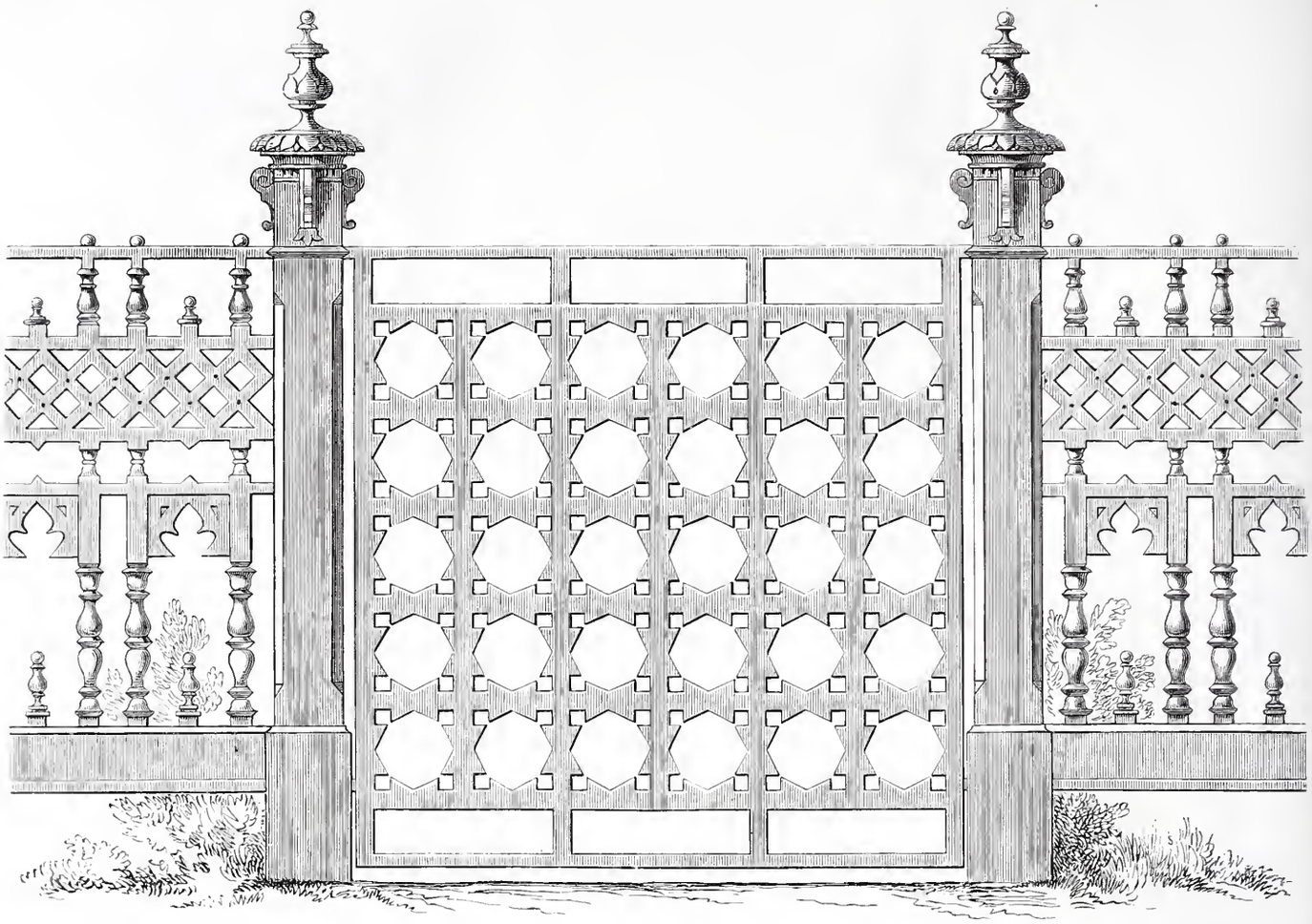
No. 18.

Nos. 17 and 18. Side-board in Carved Oak, polished with wax, for the dining-room in the Villa Leo, at Berlin: Mr. van der Hude, Archt.
The plan, No. 3 of Suppl. shows at the back of side-board a sliding-door, $0^{m}.67$ in clear, leading to the pantry.



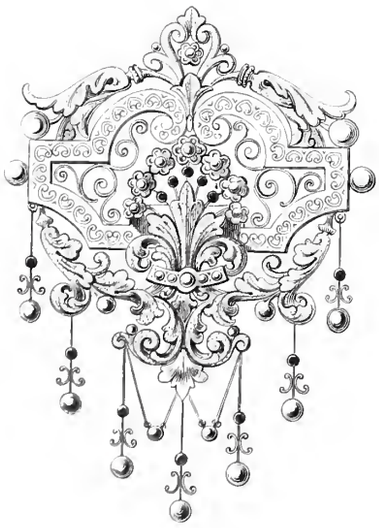
No. 19. No. 20.

Nos. 19 and 20. Carved Clock-case. For full-size details see No. 2 of Supplement.



No. 21.

No. 24.



No. 22.

No. 26.

No. 27.

No. 28.

No. 23.

No. 25.

No. 21. Mauresque Garden Door in the Villa of Jussuf Bey, Cairo. From the designs of Mr. Stadler, Archt., Zurich. The door is of simple but elegant design and of easy execution, consisting of laths, 3 centm. thick.

Nos. 22—28. Modern Jewellery; brooches, rings and ear-pendants, manufactured by Mr. G. Ehni, Stuttgart.

No. 29.

No. 29. Wrought-iron Grille from the belfry-arch of St. Guy Cathedral, Prague. Seventeenth century. From the design of Mr. Schmoranz, Archt.

VARIOUS.

Alloys.

Most metals are capable of uniting with others, the combination forming what are termed alloys. These are chemical compounds; not, as some persons suppose, simply mixtures. In many cases, when one metal unites with another, the alloy gives scarcely any indications of the characters of the component metals. Thus, copper alloyed with aluminum, in the proportion of 90 of the former to 10 of the latter, gives the alloy called aluminum gold. Again, the alloy called Regulus of Venus, so named from the beautiful violet color, consists of equal weights of copper and antimony, neither of which metals is at all similar to the resulting alloy. Some metals, when alloyed, although they undergo no peculiar modification in color, do so with regard to some other of their natural properties, the difference of melting temperature being perhaps the most remarkable. Of this class, plumbers' solder, which consists of 2 parts of lead, fused with 1 of tin, and the alloys in which these proportions are reversed to 2 parts of tin and 1 of lead, are the best known, and are much more fusible than either of the metals used in making them. A remarkable alloy of this class is that of bismuth, which melts at 500° Fah.; lead, which melts at 600° Fah.; and tin, which melts at 442° Fah.; in the proportion of 8 of bismuth, 5 of lead, and 3 of tin. This alloy melts below the boiling point of water or 212° Fah.; although even the most fusible of its components requires more than double that temperature to melt it. Toy teaspoons are made of this alloy. When used to stir hot tea, the bowls of the spoons all disappear to the bottom of the cup. The alloy of bismuth 8, lead 4, cad-

mium 2, and tin 2, melts at 160° Fah.; that is 52° below the boiling point of water. There is one more alloy which may be mentioned, on account of its peculiarity of being liquid at the ordinary temperature, there being only one other metal liquid under the same conditions; namely, mercury. This alloy consists of equal parts of potassium and sodium. Both of these metals are solid at the ordinary temperature; but when alloyed in equal proportions, they remain liquid. *Piesse.*

Woods used in Cabinet Making.

Mr. Thomas Paterson was one of the working men who visited the Paris Exhibition last year, and ably reported on what he saw there. His report is one of the twelve which compose the little work under the title of «Modern Industries» issued under the auspices of the Paris Excursion Committee. In looking through the magnificent collections of woods from Brazil, Canada, and New South Wales, and the smaller but not less interesting exhibits of Algiers, Natal, Guinea, etc., it is impossible not to be struck, says Mr. Paterson, with the small number of these woods which are in actual use in the manufacture of furniture. Some of the woods are shown to be of large size, and are exceedingly beautiful in color and figure, and many of them would contrast admirably with some of those at present in use.

There was a contribution to the Exposition of specimens of timber, collected by the late Captain Fowke, in which several hundreds of different kinds of wood are arranged in a kind of revolving screen. Each specimen is labeled with its specific gravity, and the amount of weight necessary to break it. Each piece was of the same size — viz., two inches square, and has been actually broken by the weight marked on it, thus giving any one accustomed to work in wood a very good idea of the use it may be put to. Collections of this kind would be of the greatest use. They might be accompanied with a book composed of leaves of the woods, prepared and polished, to show their texture and color, with labels giving the average size of which boards could be cut, the average price, and the market, etc. At present neither artist nor workman is aware of the resources which are at their disposal, and much meretricious ornament would be avoided if this mine of decorative riches were fully explored. In the French colonies department there were some articles of furniture which have been made from the woods of Cayenne, cut by the convicts sent to that settlement.

That a wide and systematic acquaintance with the resources of any country is the first requisite to the development of its trade may be considered an obvious truism; yet in this country, eminently trading and manufacturing, and depending for its greatness upon the growth of its trade and manufactures, no means are taken to make the traders and workers acquainted with the materials which are being wasted in our vast colonies, but which, if known, would be sources of wealth which we can scarcely overestimate. The staghorn sumac may be mentioned as an example of a very finely veined wood, which seems to be plentiful, and which, though it does not grow to any great size, would be useful in manufacture. The butternut, a kind of walnut wood, grows to a large size, and seems to be very cheap. The kauru (or New Sealand pine), also a wood to veneer upon, would, I think, be of the greatest value; as well as the heron pine (which is sufficiently handsome to be used without any veneers), the red beech, and many others.

As a new application, or, rather, the extention of an old process in the treatment of wood, the chairs and settees in the Austrian department, made by bending long slips, may be instanced. Some of these chairs were exhibited in 1862. The manufacture has, however, greatly improved since that time. One chair in the exposition (purchased by the Prince of Wales) was all that could be wished, both as regards strength and beauty. Though no one would wish to see this system of bending wood applied to all articles of furniture so exclusively as it is applied in the manufacture of these chairs, yet the capabilities of the process are well shown, and much might be learned from them. I noticed a method of producing a very good kind of decoration on polished wood by stamping with what is called by chasers a mutt tool, which produces a slightly roughened but regular surface, the pattern being left polished. I observed, also, in passing round the Historical Gallery, a mode of decoration which had an extremely good effect. This was an application of tortoiseshell. The under surface or side applied to the piece of furniture had been polished and gilded, the outside surface of the shell being then carefully smoothed, and polished, the gold showing through the semi-transparent shell, and giving all its markings, while the shell protected the gilding, so that, though it had been made for more than twenty years, it was still beautiful and effective. It seems to me much to be regretted that some method cannot be devised which would place all such methods of decoration so completely before all our workmen and designers, that they might have them, so to speak, at their finger-ends. *London Building News.*

Photography.

Producing Colored Pictures. — Various attempts have been made to obtain photographs of objects in their natural colors. These attempts have been so far successful as to produce photographs in which every color of the original was faithfully represented; even the iridescent colors of the peacock's feather have been beautifully photographed. It is, however, not yet quite certain whether any means have been discovered by which the colors can be permanently fixed, as hithertoo they have slowly faded away, and become one uniform reddish tint. It is generally admitted that, up to the present time, the most successful photographer in producing colored pictures is M. Niepce de Saint Victor whose process is this: He takes a daguerreotype, or silver coated plate, and dips it into a weak solution of hypochlorite of sodium, having a specific gravity of 1.35, until it has assumed a bright pinkish hue. The plate is then covered with a solution of dextrine, saturated with chloride of lead; it is then dried, and subsequently submitted to the action of heat for several hours until the temperature of the plate reaches from 95° to 100°, or else expose the plate to the rays of the sun as a substitute for artificial heat, under a sheet of paper which had been steeped in an acid solution of sulphate of quinine. The plate is then ready to be placed in the camera obscura, and to receive the colored picture of the spectrum, or any other object. It is said he has succeeded in increasing the stability of the colors developed on the sensitive surface by covering the plate with an alcoholic solution of gum benzoin. This branch of photography has been called Heliochromie.

Decorations of Porcelain, Glass etc. — A very important economic application of photography to the decoration of porcelain, glass, etc., with gold, silver, and other metals, consists in producing an ordinary silver image on a collodion film, and then, by toning processes, converting this image into any other metal which may be necessary. For a gold design the image is toned with chloride of gold; for a design the color of steel the image is toned with chloride of platinum; for a black metallic design the image is toned with chloride of iridium; for a brown design the image is toned with chloride of palladium. A design in a metal of one color can be obtained by first toning the image by the proper metallic salt, and then saturating the film with a solution of some other salt. The collodion film, treated in the manner indicated, is then transferred to the porcelain, and the salt reduced to the metallic state by heat.

Humphrey's Journal.

The Workshop.

A Monthly Journal, devoted to Progress of the Useful Arts

EDITED BY

PROF. W. BAUMER, I. SCHNORR AND OTHERS.

VOL. I. No. 13.

Value and Importance of Ancient Models in the Useful Arts.

By Mr. Jacob Falke.

The great importance of ancient models for modern Art-Industry can be no longer disputed, the facts which the last Exhibitions made evident having sufficiently proved it. But there are eyes that do not see, and ears that do not hear, and sometimes we meet with the opinion, strange and incomprehensible in our day, that the old creations of the Useful Arts are worthless for us, and altogether useless for modern Art-Industry. It is true that art-collections are being established, and the necessity of them for the improvement and elevation of Taste is generally acknowledged; but these museums are intended for modern specimens and works of Art-Industry of the present time.

It will be easy to demonstrate the absurdity of such an opinion, which can only be harboured by those who are ignorant of the link between the old and the new, and who fail to appreciate the intrinsic worth of ancient master-pieces. For the best productions in the realm of taste amongst modern nations are French and English; but their very best are suggested by the study and imitation of old specimens. Others, satisfied with following their lead by imitating the imitators, only produce second-hand copies, instead of referring directly to the originals.

Although the inference derived from hence might appear convincing enough, we wish to make the value and importance of works of art, and their usefulness as models for modern reproduction, the object of our study.

It may be considered as an acknowledged fact that, until the beginning of modern revival of Art-Industry, or rather the effect thereby experienced, nothing commendable has been produced. The French works of art which alone enjoyed until then an immense though vague reputation were stared at unconsciously, and blindly accepted without being examined. But today all those productions of French Industry are estimated at their proper value. However superior they may be to the imitations made from them, they are nevertheless deficient as creations of true art.

Two principal faults may be pointed out which adhered till then, and indeed do so still, to the great mass of all modern creations of Art-Industry, especially to the French works which must be considered as types and models of their kind; viz., complete neglect of the artistic form, and deficiency in color, limited to the employment of grey and other cognate tints. Besides, each industrial department had its particular defect; furniture, e. g., was of faulty and irrational construction; in glass manufacture the properties and refractive qualities of the material were mistaken and neglected; precious metals, especially gold, suffered under an injudicious treatment and disregard of their eminently plastic qualities, and their alliance with colored enamel. The art-workman having for years, nay for two centuries, pursued a wrong path, the taste for simple beauty and purity of form, the sense of true harmony of color, had necessarily been destroyed in the artist as well as in the public. The latter following, as a mass, merely the dictates of fashion, have gradually become disused to the beautiful; and having for years past thrown away as rubbish what inheritance they once possessed from their predecessors, are now naturally devoid of all understanding in this respect. They demand novelty, not beauty; satisfied with the substitution of some odd fancy or idea, some freak of nature, for severity of form, they do not know that instead of a work of art they have in hand some mere childish toy.

It is evident that this unsound taste of the public can only be improved by the view and appreciation of good models. But are the most recent creations, or the more ancient ones which already served as models for modern works capable of producing such results?

It cannot be denied that great benefit has already

been derived from those new endeavours for a revival in art, much being produced which in its turn may be set up as model and example. But, without considering that these creations are the results of taste derived from the original and genuine one, only few of them may be termed entirely faultless and unincumbered in any way with the defects of the present or other opposite ones. Too frequently, in endeavouring to avoid Scylla, they have fallen into Charybdis. Decorations, e. g., in order to avoid the grey tints have often been made too gorgeous in color. For carpet-patterns and table-covers stiff geometrical ornament has been adopted by way of reaction from immoderate naturalism.

In imitation of old majolicas and works akin to them, quite a new branch of the Ceramic Art has arisen, which, and it is with great pleasure we acknowledge this, has produced much that is highly interesting and satisfactory. But the best works are those which are copied as strictly and faithfully as possible from ancient models, and even in them we often miss the congenial repose and harmony of color of the original, and the judicious mode of execution which keeps the right medium between over-refinement and coarseness or neglect. Original creations, attempted in this branch of art, are generally hard in form, outline, or color, and more or less incongruous as to invention, and the limits imposed by the material. Anyhow, it is not easy to find productions of this kind which might be conscienciously recommended as faultless models.

The same may be said of other branches of modern Art-Industry. The reintroduction of old Venetian glass-manufacture, the imitation of those charming and light glasses of the sixteenth and seventeenth centuries of Murano, by Salviati and his companions, is certainly a very promising fact; still it cannot escape an experienced eye, comparing the old with the new glasses, that the former greatly surpass the latter in lightness, elegance and beauty of form. And nothing is more natural than this. These glasses are free creations of an original artistic genius, of a skilful masterhand, and an experienced, unerring eye, not work made to pattern. But such nicety of execution, such true understanding of beauty of form, are the results of long experience and culture to which the art-workman of the present day is still a stranger. Salviati's new and original creations in the old style are mostly capricious in form, and sometimes regardless of beauty. These modern Venetian glasses, however willing we may be to acknowledge their relative merit, cannot therefore in any way become a substitute for their ancient models.

If, however, we study attentively the ancient works of art, we shall hardly be at a loss whenever characteristic examples are wanted. Perhaps no branch of modern Art-Industry has been reduced to a more unsatisfactory state, or less benefited by recent reforms than jewellery. We should be entirely at fault, were we required to fill this section of a museum for Art and Industry with European productions of the last few years. What clumsy or singular vessels, what absurd table-services and centre-pieces, what capricious varieties of bijoux, poor and insignificant of invention, should we not have to classify! What contrast with the works of Antiquity, the Middle-Ages, Renaissance, and Eastern Art! Where can we find more charming jewellery, more strictly conventional, and graceful in design, and more exquisite in workmanship than the marvellous creations of the goldsmith's art of Classical Antiquity? For diadems, hair-pins, necklaces, brooches, rings, and bracelets, for everything in fact do we find noble specimens in which the precious material is made to produce the most beautiful effect. Mediæval metal-work also, for the service of the Church, the adornment of the altar, the sacred vessels, etc., exhibits models equally remarkable for rich elaborate workmanship, and ever-varying forms of noble dignity and unblemished beauty. Then the goblets and monster drinking-cups of late Gothic Art, with their bosses without, and the sparkling glitter within; after these the elegantly designed and richly moulded cups of the Renaissance period, wrought with exquisitely chased and embossed ornament and figures. These all display great purity of taste and true understanding of form, proportion and outline, accomplishments which have been destroyed by our vulgar homage to naturalism, and love for solid masses of brilliant silver. To those advantages we may add the employment of translucid and opaque enamel, giving to the plastic form the charm and enhancement of color. How very seldom, if at all, do we find works of the modern goldsmith which might bear comparison with the charming and elaborately wrought *chefs-d'œuvre* of the sixteenth and early part of the seventeenth centuries, productions which exhibit the most delicate treatment of gold, combined with the effect of enamel, engraved and cut crystal, pearls, precious and semi-precious stones, in most successful and perfect works of art. If there are recent productions of this sort they have been created by way of imitation of those works, which are to-day the gems of our art-collections.

Nor is it more difficult to find models for the art-workman in more common metals, especially iron. Iron, as material for works of art, has until lately been unjustly neglected in the nineteenth century. Cast-iron work may have much contributed to this, an elegant and judicious treatment of which, satisfying the artistic taste, having but lately been successfully attempted. It has only been valued for its technical properties, and in an artistic point of view has been replaced by brass or other amalgamats more brilliant on their exterior surface. But the numerous metal works of the fifteenth and sixteenth centuries, those unsurpassed and flourishing periods of art, show to what degree this material will lend itself to a superior, artistic employment, at once rich and manifold, appropriate and rational in its application. We may begin with the most simple objects and nevertheless find them instructive, and exemplary of their kind. If we consider, e. g., door-hinges, locks, bolts etc. welded and fashioned under the hammer, extending and interlacing each other as if growing and unfolding themselves naturally into leaf and flower, elegantly but

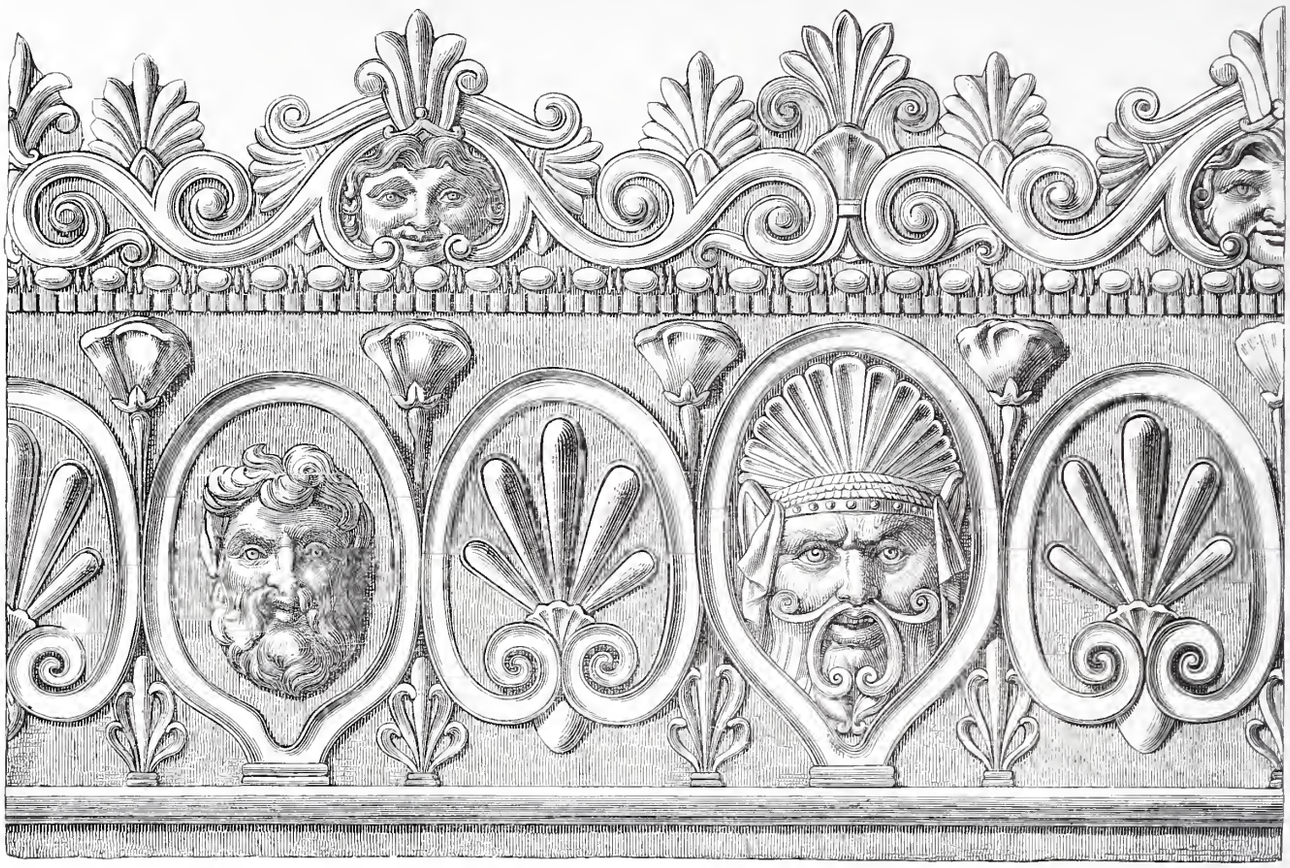
solidly stretched over the surface of the door; if we see how these leaves and flowers gain life and spirit by embossed, flowing scroll-work, by the bold but graceful play of forms and lines, we cannot but confess that everything looks as if it could not possibly be otherwise, as if it were the work of nature rather than of man. The same character is seen in embossed ornamental locks, in keys with artfully worked handles, and at a later period in etched box-mounts, and other plates with delicate arabesque-work, in wrought-iron grilles, and the large, freely worked flowers, serving as terminals. If, in glancing at the craft of the armorer of the period, we cast a look on the etched, chased and damascened armors, the gilt and inlaid blades, the sword-hilts worked in steel and iron, there will arise before the experienced eye of the connoisseur a whole world of rich and admirable works with which we have at present absolutely nothing to compare, although the neccessity for an artistic treatment of wrought-iron has actually gained ground and achieved practical results in England and France.

We may pass now to another branch of art, i. e., productions in wood. Many must have admired at the last Paris Exhibition the Italian wood-carvings, their elegant framework, panelling, compartments with charmingly executed relief-work, and lastly the chests with their exuberant richness of ornamentation, inlaid ivory and engraving. All these, as well as many other Italian works which adhered strictly to the old examples of the fifteenth and sixteenth centuries, have borrowed their charm and excellence from these specimens of a happier period of Art in Italy, which in every respect may be looked up to as models and genuine master-pieces, advantages which however do not belong to Italian productions alone but also to other works of the same time.

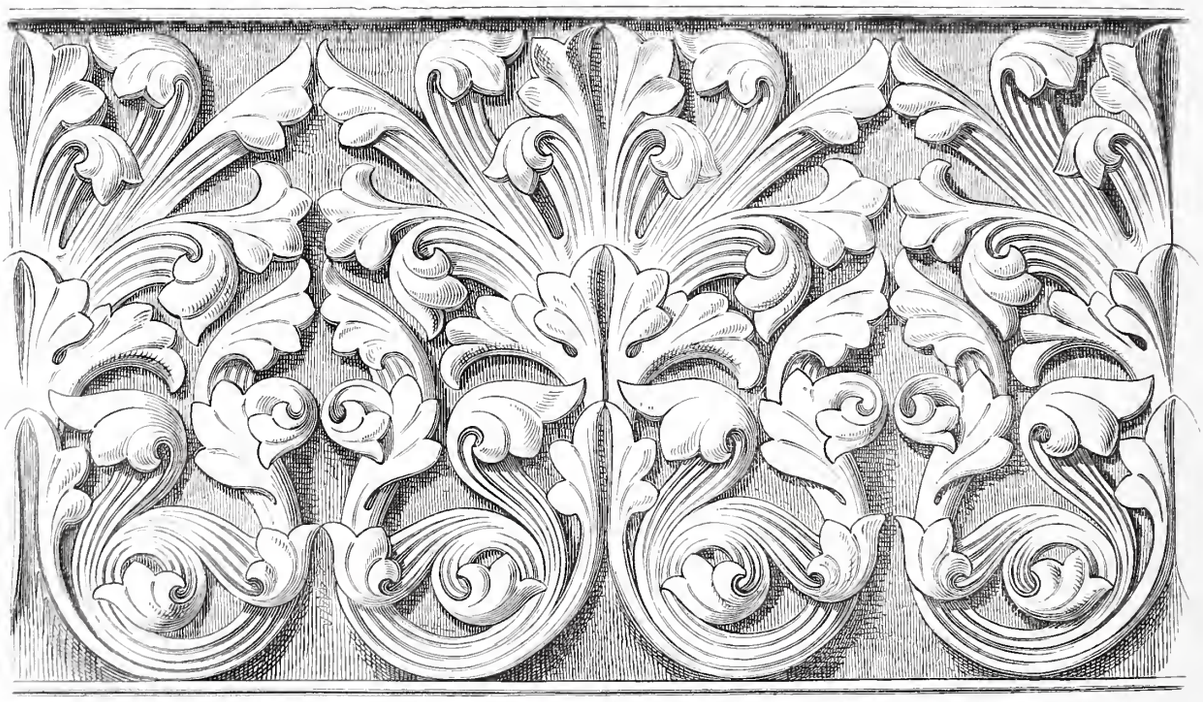
By the Italians of our days we are taught infallibly the value of ancient models by way of contrast, for where they do not resort to them, as, e. g., in the magnificent fabrics for ecclesiastical use, their productions appear as if devoid of all artistic taste and understanding. Their gold-diapered church-vestments exhibited at Paris were coarse and common, without design and harmony of color. Still not less beautiful specimens of this kind, and also of Italian workmanship, are preserved from the early time of the Middle-Ages until the sixteenth century. The old silk tissues of Lucca, the weavings in gold and velvet of Genoa and Venice, are everything that can be desired for such surface decoration. If we add to these the brocades of Lyons, Tours and Flanders, the tissues of old Saracen origin, together with all the Indian, Persian, old and new Eastern fabrics, which as a traditional or inherited decorative art, we may and must rank amongst the old models, we have to dispose of an abundance of ornamental motives, sufficient for every requirement either of study or practical use.

Reviewing the past, its resources at our disposal are inexhaustible. Perhaps we may meet with the objection, that if we lay under contribution, without reserve, both past and foreign Art, we shall finish by being mere eclectics, or put together things which from their very nature must ever be incongruous. But the case is simply this: No period in art, no nation has ever cultivated all the branches of Art and Industry simultaneously; they often appear even independant of each other; e. g., Mediæval surface decoration, while of Mauresque origin, has no sort of relation with contemporary Gothic Art either in Architecture or in the Useful Arts. Pottery, which the Greeks brought to perfection, was in its turn hardly and but imperfectly cultivated during the Middle-Ages. We must first enquire after material and purpose, and then look about us where an object, in accordance with its nature, was brought to perfection in order to make it our model. The difference we may remark in different specimens is neither that of style, nor period, but caused by the nature of the object. Objects of different kinds in harmony with themselves, will not disagree with one another. High above them stand the unchangeable laws of Uniformity and Conformity. Thus we shall cease to trouble ourselves about the choice of *some* style and at last succeed in actually possessing a style of our own, i. e., the true and artistic expression of form, most appropriate to the object. This is the right and genuine naturalism, the artistic form natural and proper to the work.

Specimens of Ornamentation.



No. 1.



No. 2.

No. 1. Greco-Italian Style. — Ornamental Cyma in Terra-cotta, crowning upper part of cornice.

No. 2. Romanesque Style. — Ornament of Arch-mouldings of Western Doorway of the Abbey-church Marienberg, near Helmstett; 12th century.

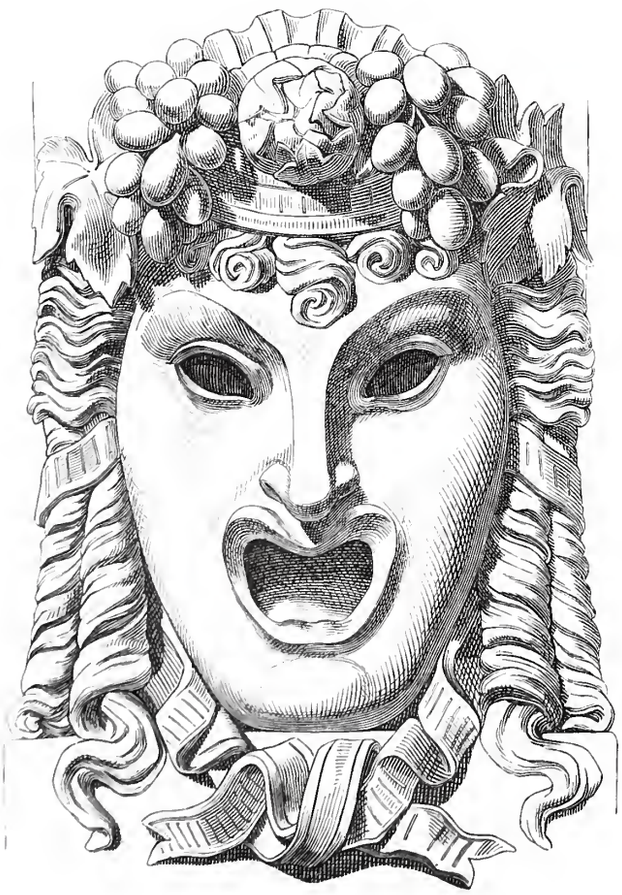
No. 3.

No. 4.

No. 3. Lombard Style. — Capital from Church of Sa. Sofia, Padua. Designed from nature by Prof. Toniato Luigi, Vicenza.

No. 4. Romanesque Style. — Detail of Arch-mouldings of Rose-window from Notre Dame, at Chalons sur Marne.

No. 5.

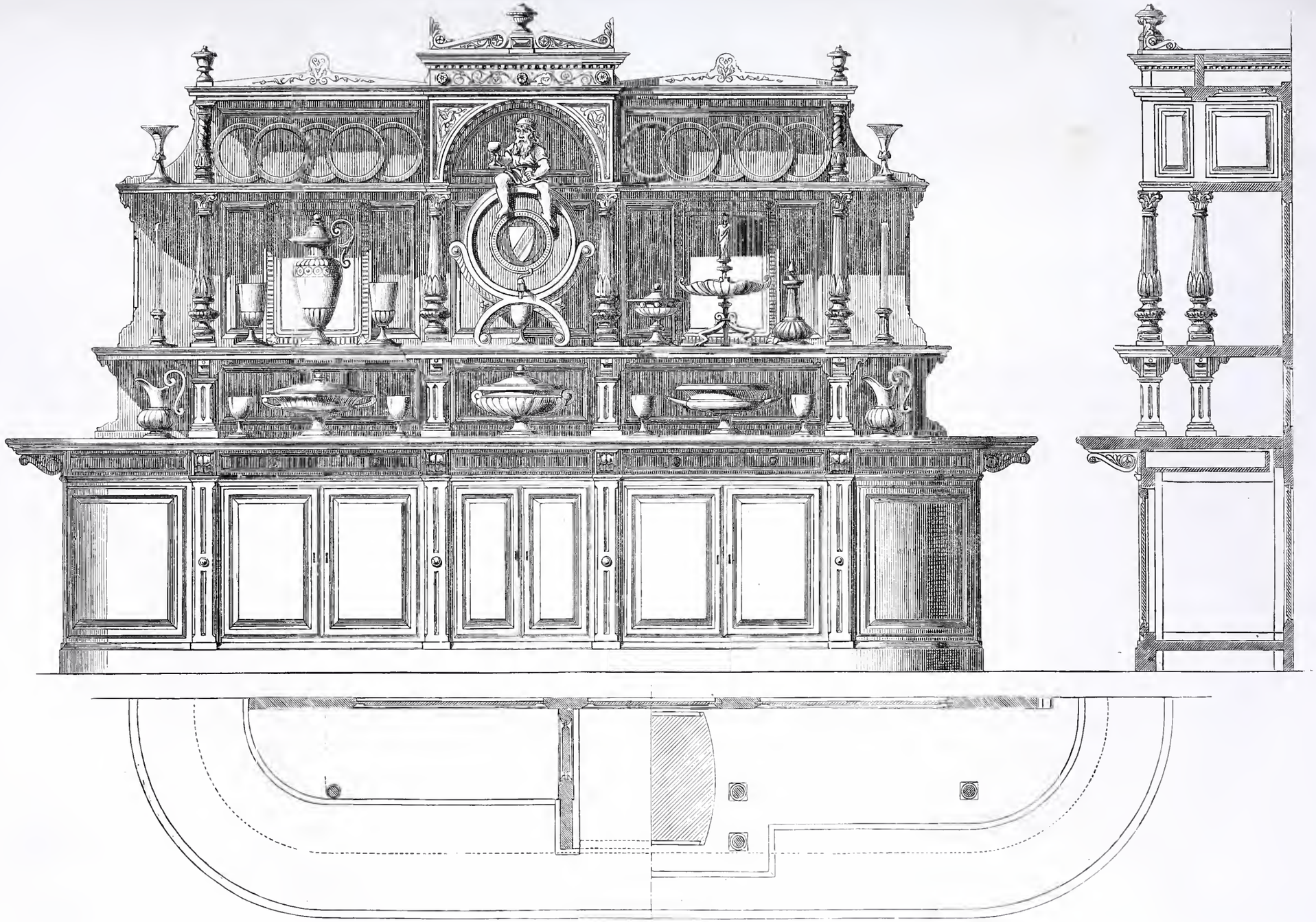


No. 6.

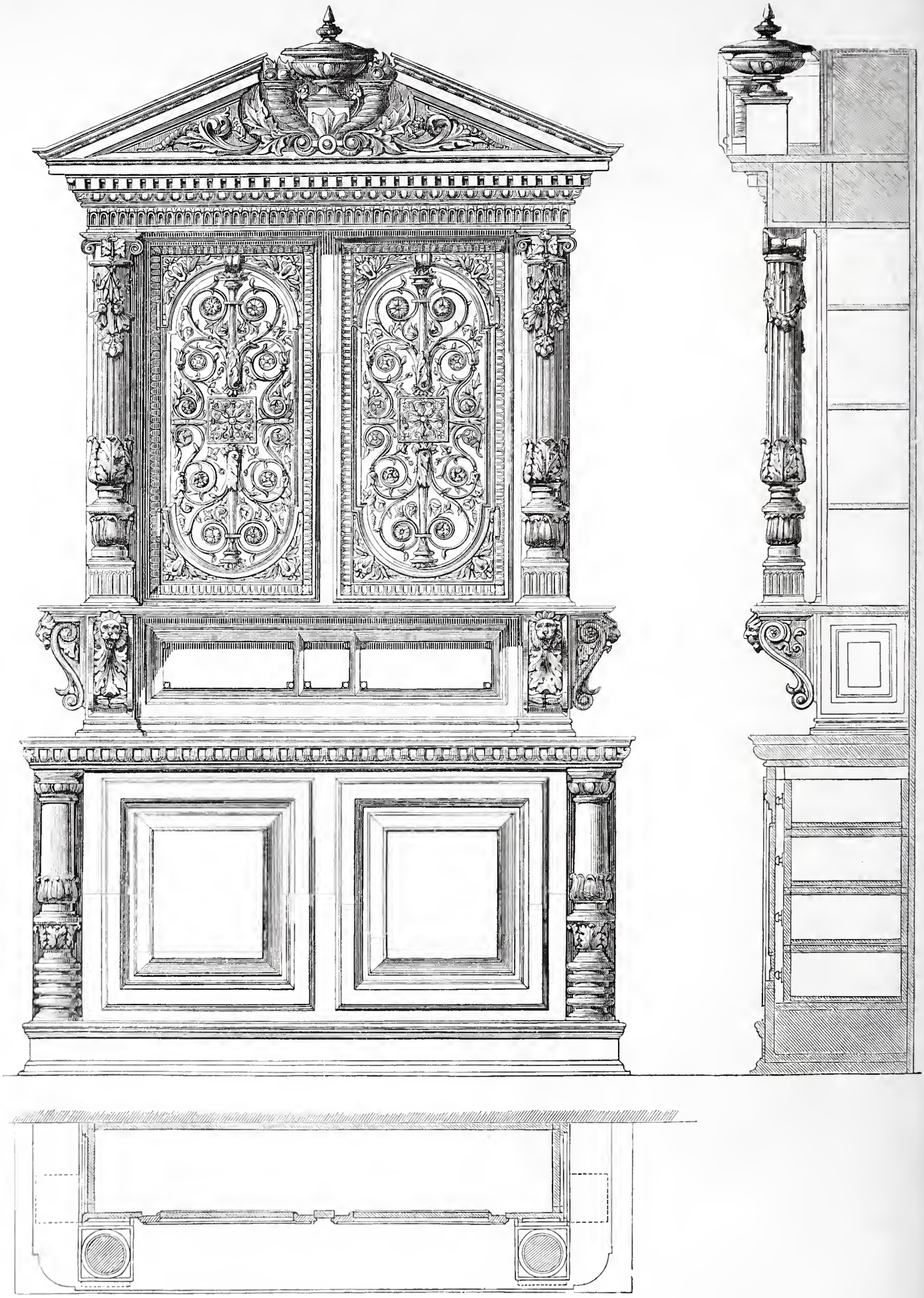
No. 7.

No. 5. Ornament surmounting the cornice of the Loggia of Villa Ravené, Berlin. Messrs. Ende and Bœkmann, Archts.

Nos. 6 and 7. Tragic Masks, from the New Opera House, Paris. M. Ch. Garnier, Archt.

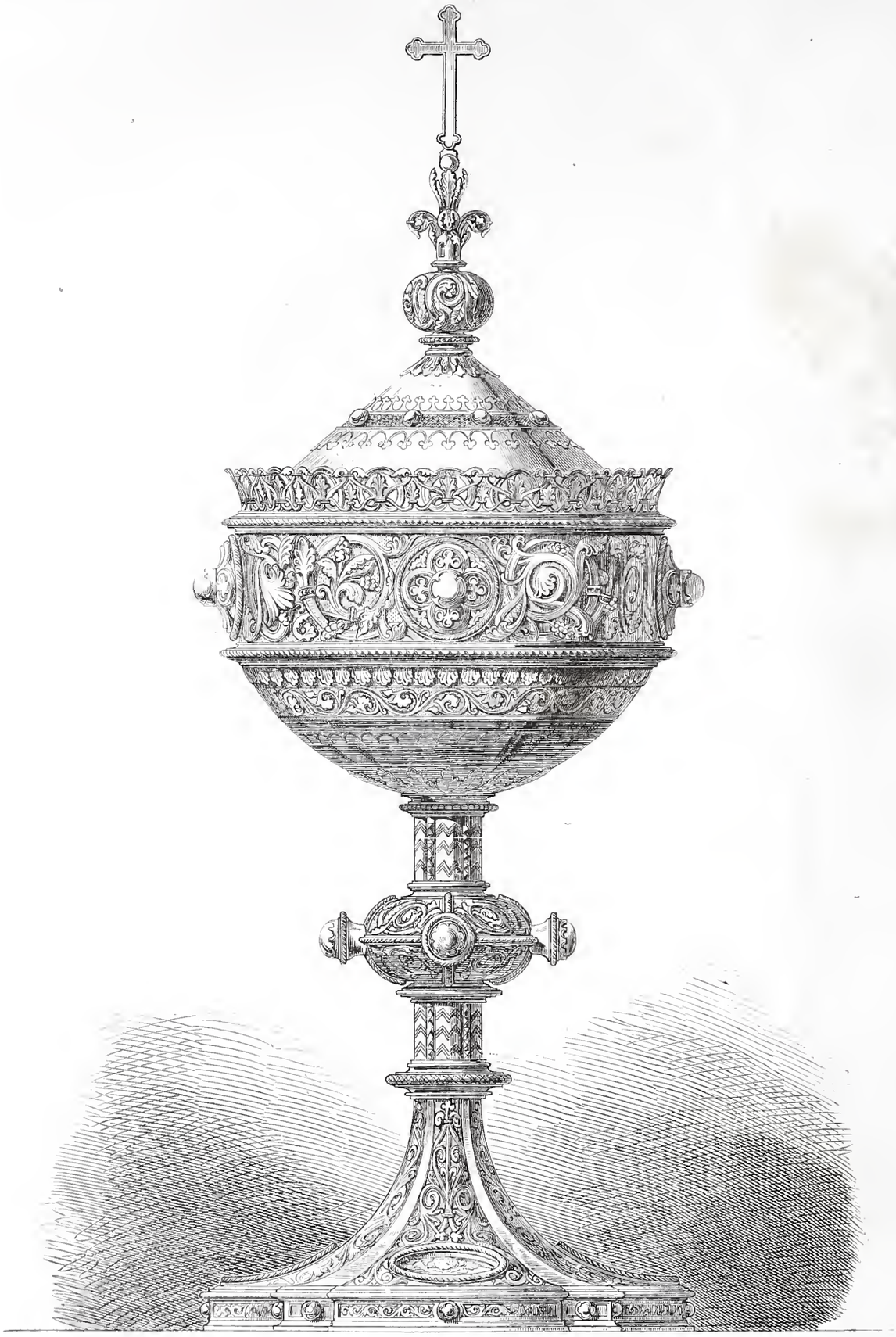


Nos. 8—10. Modern Side-board. Elevation, section and plan. — For details see Nos. 3 and 4 of Supplement.



Nos. 11—13. Cabinet. Elevation, section and plan.
For details see No. 1 of Supplement.

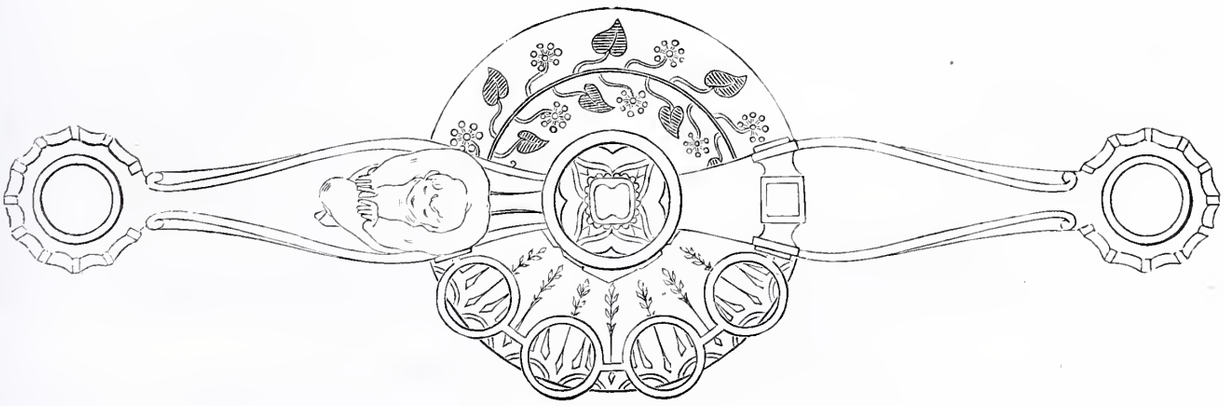
Nos. 14—16. Principal Doorway to the Stables for the horses of Prince Anton of Hohenzollern Sigmaringen.. The door, in accordance with the date of the building is designed in the style of the end of seventeenth century.



No. 17.

No. 17. Pix. Mr. V. Teirich, Archt. For ground-plan see No. 2 of Supplement.

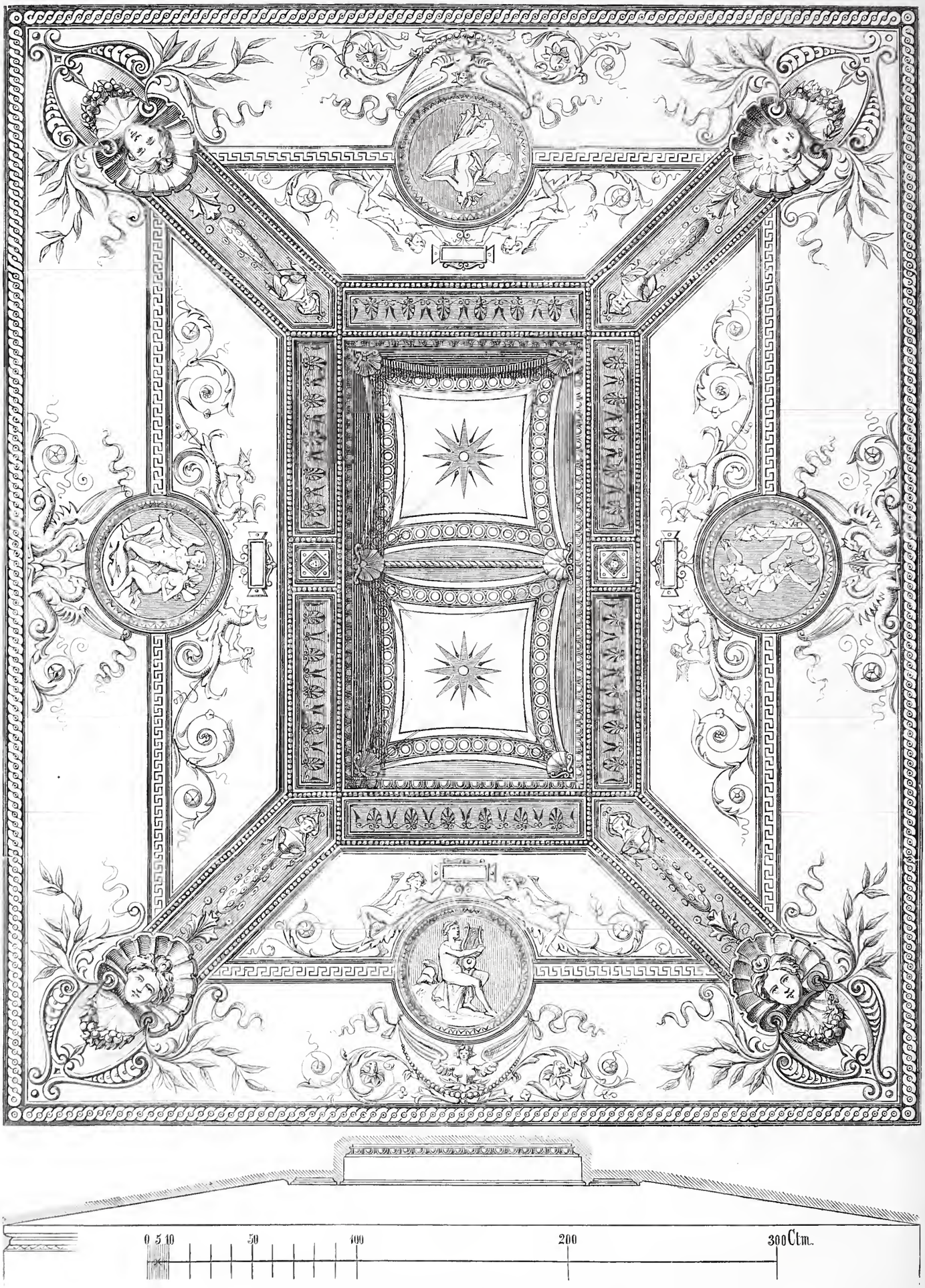
No. 18.



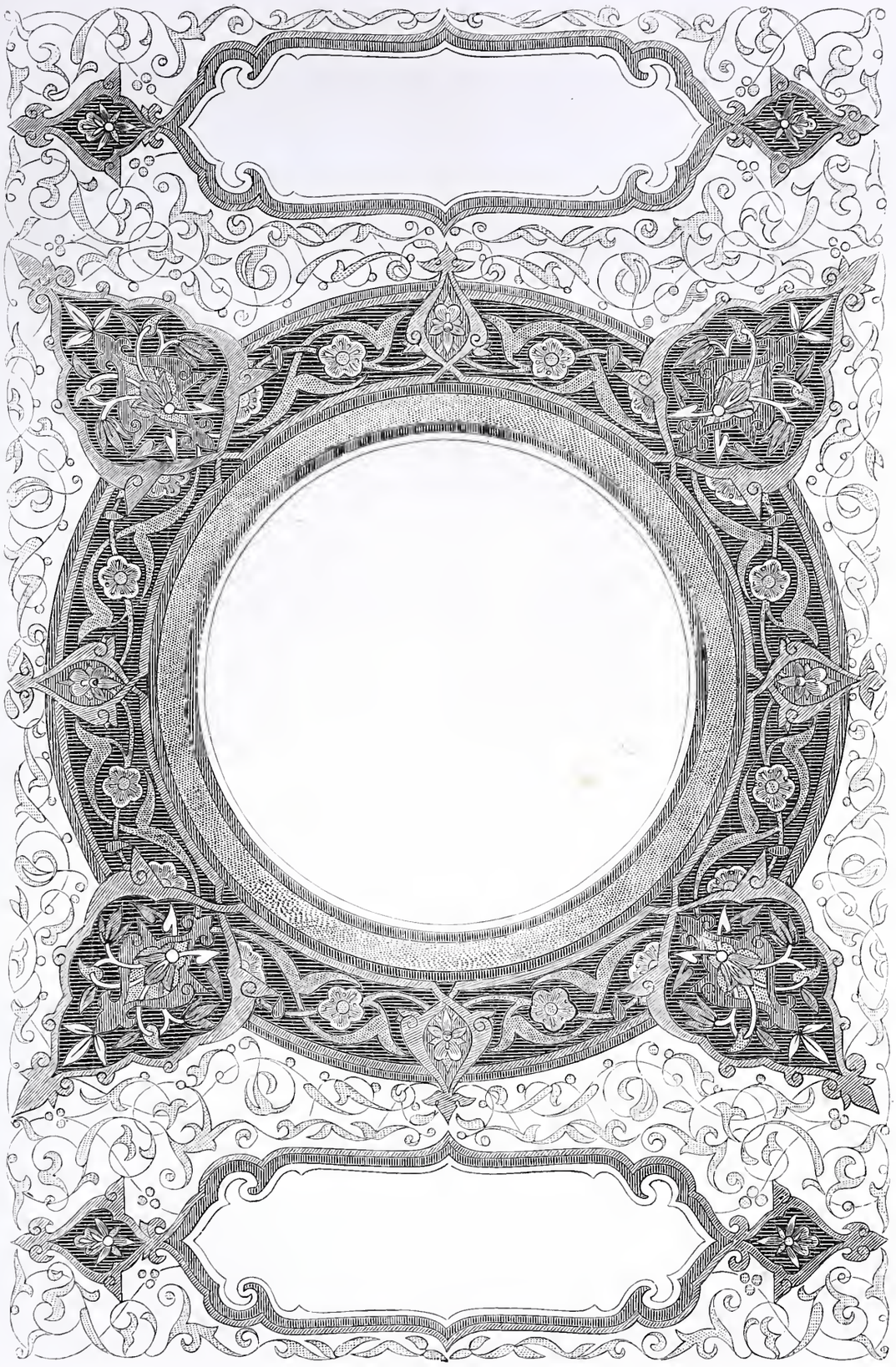
No. 19.

Nos. 18 and 19. Candle-stick and Cigar-holder in gilt metal, for an elegant smoking-room. — M. P. Bénard, Archt. Paris.

The ornaments are incised and filled in with enamel; the two winged figures, warming themselves at the light are silver-coated.



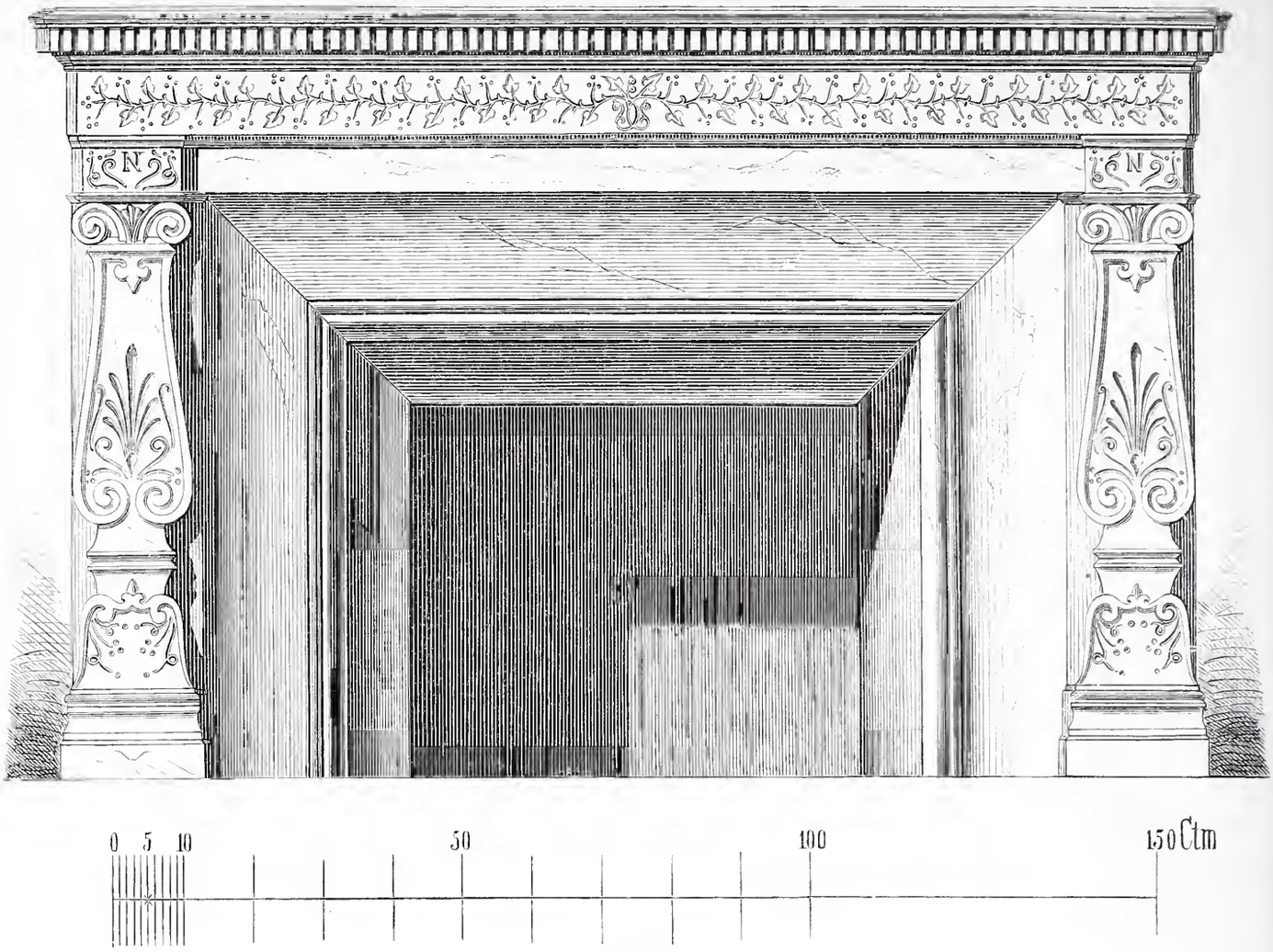
Nos. 20 and 21. (For descriptive notice see p. 205.)



No. 22.

Nos. 20 and 21. Drawing-room Ceiling for Stucco-work and Painting. The frieze and medallions in stucco relief-work; the medallions representing Song, Love, Wine and Dance, on gold or cobalt ground; the diagonal bands on blue ground with brown-red outlines etched with gold; the honey-suckle ornament yellowish-brown; the centre buff with light-brown borders and yellow stars; the segments light blue, the trapezoids greenish white, outlined with red; the grotesque figures painted in different colors; the frets green with red.

No. 22. Title-page, in modern Mauresque Style. M. Clerget, Artist, Paris. — Ground of centre and plates yellow, bordered with vermillion and green; ground of ornament blue, the latter chiefly yellow.



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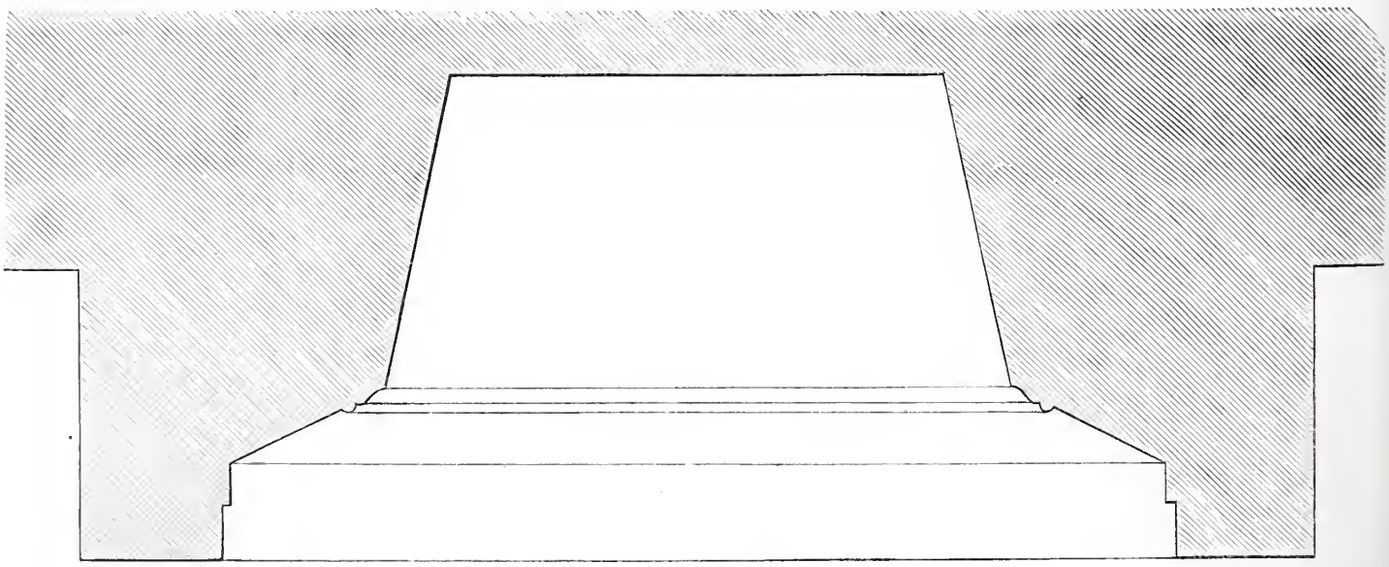
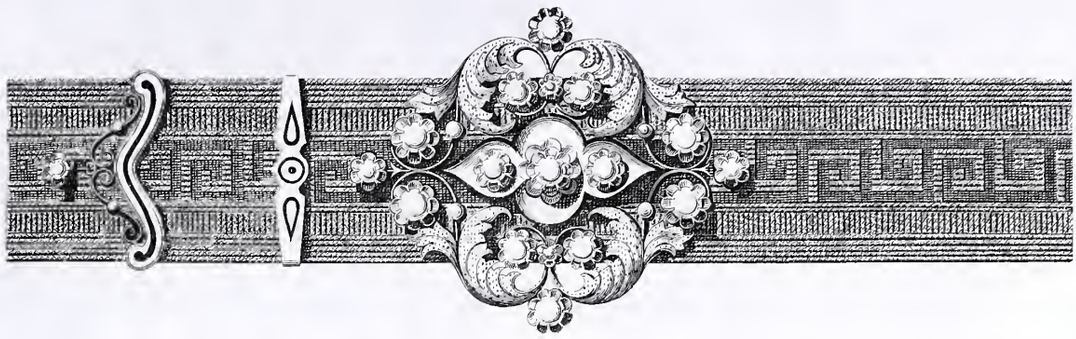


No. 24.

Nos. 23 and 24. Marble Chimney-piece, from the Pompeian House of Prince Napoleon, Paris. — M. Alfred Normand, Archt.

For details see No. 5 of Supplement.



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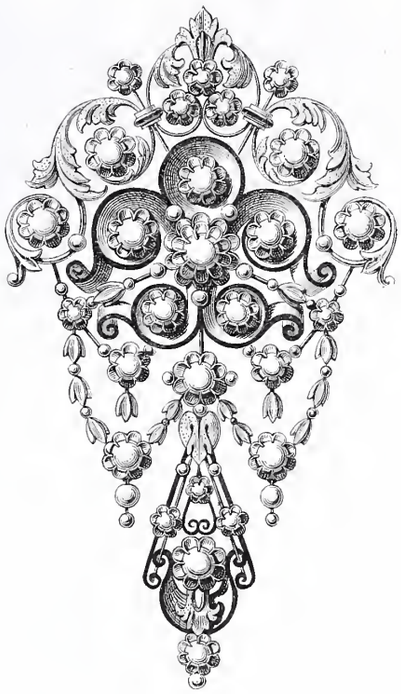
No. 28.



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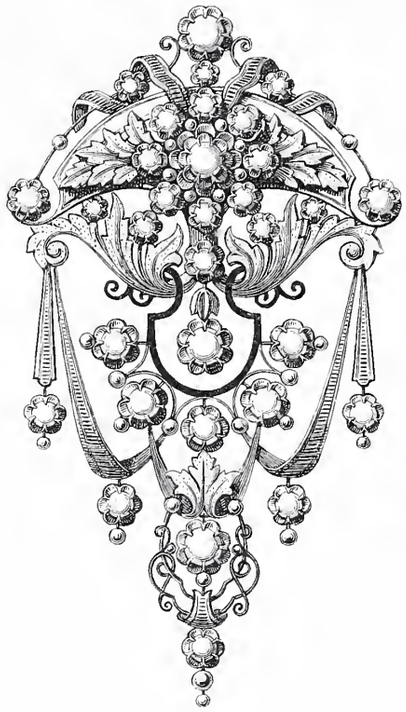

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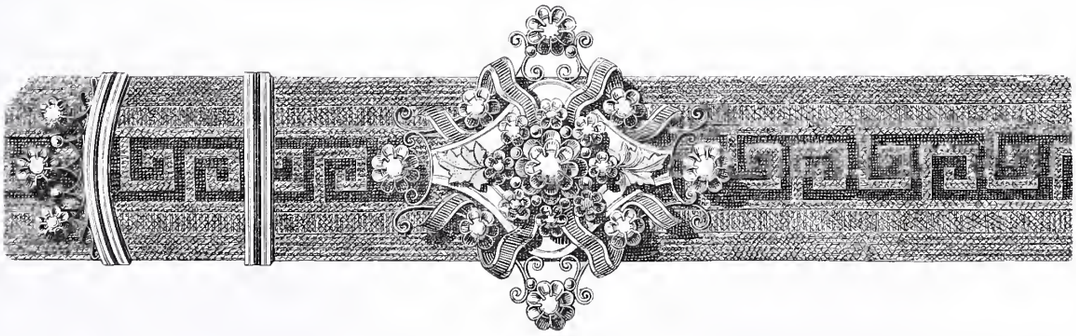
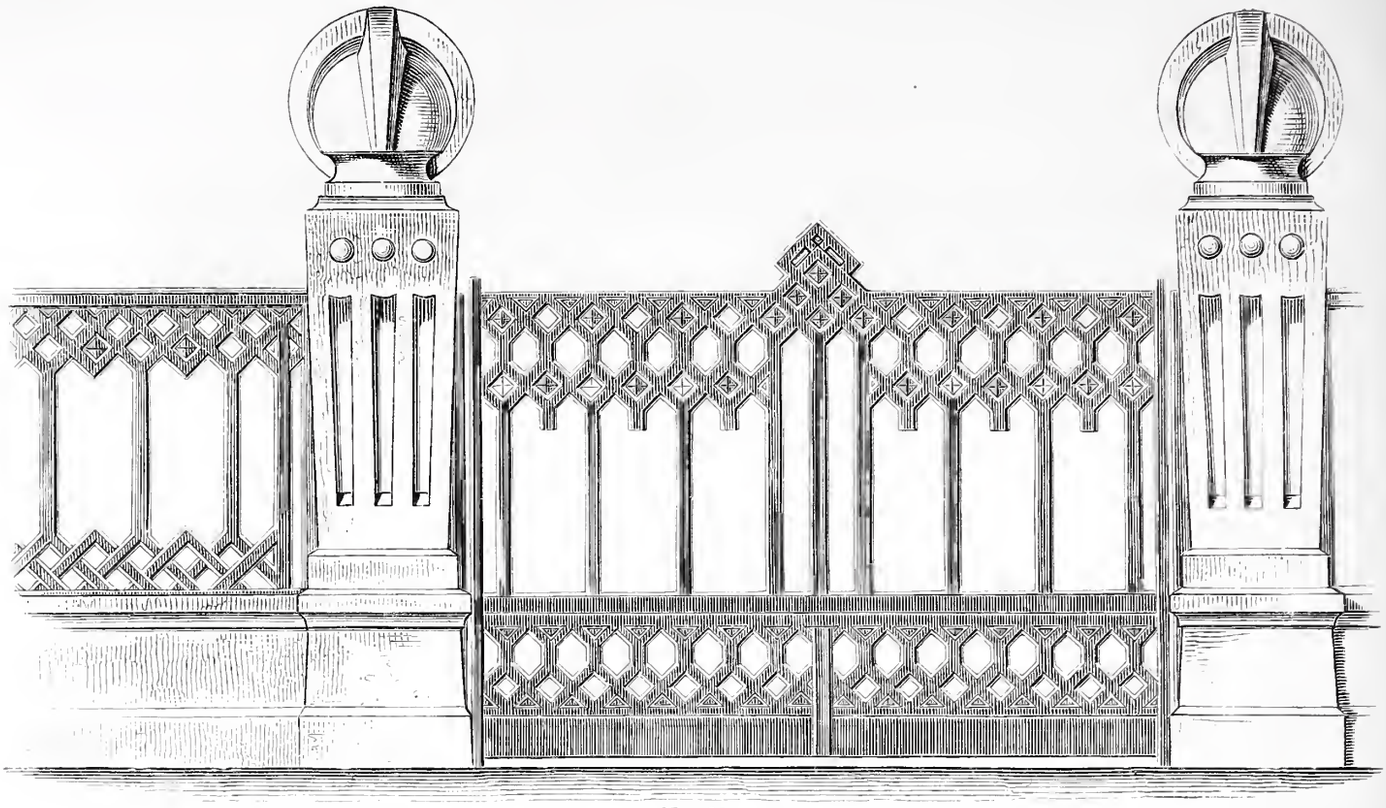
No. 29.



No. 30.

Nos. 25—30. Modern Jewellery; manufactured by Mr. G. Ehni, Stuttgart, for export into Havannah and Mexico.



No. 31.

No. 13. Entrance Gate of Public garden in Mostaganem, Province Oran, Algiers.
Designed from nature by Mr. F. Stadler, Archt., Zurich.

VARIOUS.

The Slade Collection of Ancient Glass.

The *Art Journal,* referring to the collection of Glass bequeathed by the late Mr. Slade to the British Museum, observes that in number, the objects amount to about a thousand, and among them are specimens, from the earliest attempts at glass making, down to the most elegant products of the best period of the Venetian manufacture, when fine Art combined with mechanical skill in the production of what we may call the triumphs of the manufacture.

The first of three large cases contains principally antique glass; the centre is filled with German and Dutch; and the third is devoted to a display of the most exquisite examples of Venetian. But beautiful as these are, they are less wonderful than the Arabian vases, which are among the largest in the collection, being at the same time the rarest, and, consequently, the most precious. The ornamentation of these glass vessels is the most elaborate arabesque enamel. In form they are by no means so elegant as the Etruscan, nor do they in any wise emulate the grace of the Venetian manufactures; but remembering the people that produced them and the date of their production, they are marvellous examples of industrial Art. Besides these, in the same category, is a variety of small vessels of moulded glass, which have been found in tombs, resembling lachrymatories in some degree — but used for unguents.

Among the antiques are some valuable gem rings, the settings of which look old, but are, perhaps, not original. These are accompanied by curiously enamelled necklaces, a large opal glass vase, numerous small vases, unguent bottles, lachrymatories and a variety of other objects of interest and value. It is at once remarkable that we are instantly impressed by the salient characteristics of the Northern and Southern nationalities of the 15th, 16th, and 17th, centuries, by a single glance at the taste and design displayed in their respective manufactures. There is a German glass tankard of 16th century work, presenting a baptismal procession, drawn with much of the feeling of Albert Dürer; also a cup and cover, with enamelled figures of the 17th century; a Dutch tankard, richly ornamented, having the crucifixion as a principal subject; a German goblet (17th century), with a portrait of a lady on one side and a coat of arms on the other. Among the Venetian glass there is but little colour, the artists having been content to entrust their honour to the safe keeping of their design, which, in its round of variety; exhausts the beautiful in form. We cannot give the space to a description of this valuable collection which it merits; even one of its objects would afford subject matter for a chapter of description and dissertation.

Discovery of Antiquities.

Some soldiers occupied recently in making a trench near Hildesheim discovered a mass of vases, cups, candelabra, etc., about fifty in number, all in massive silver, and of which the workmanship and design give reason to suppose that they were produced in the time of Augustus by Greek artists. One cup is decorated with a charming chasing in relief, representing the infant Hercules strangling the snakes, and another with satyrs, bacchantes and attributes appertaining to Bacchus. At Rome the hidden treasure of Pope Sextus Quintus has been found amid the ruins of, a vault; in addition to considerable sums of money, the treasure is said to include objects of art of great value or interest.

Journal of the Society of Arts.

The Workshop.

A Monthly Journal, devoted to Progress of the Useful Arts

EDITED BY

PROF. W. BAUMER, I. SCHNORR AND OTHERS.

VOL. I. No. 14.

ANCIENT KNOCKERS.

(With illustrations, page 211.)

The important transformations accomplished in the social and political life of our age as opposed to the past, the thorough change which our views on intellectual culture and customs, on public and private life have undergone, combined with the increased requirements of comfort and luxury could not but modify our artistic taste and consequently art itself. Very seldom indeed do we find productions of former periods in art adapted to modern use in their original form; especially is this the case with regard to house furniture and implements, which present one of the most difficult but also most grateful tasks of the Useful Arts, if we try to imbue ourselves with the true style and spirit of the old masters, combining therewith a judicious treatment of the material, and in pursuing this path aim at creating works at once beautiful and perfectly appropriate to the customs and requirements of the day. Many changes have been wrought in this branch of art in the rapid course of time, several of which are for the better, although perhaps not in a purely artistic point of view; for the levelling tendency of our exertions is not exactly favorable to the development of Art-Industry in the spirit of the Middle-Ages and Renaissance.

Uniformity is the most daugerous enemy to individual and original conception and form in Art; it is that which the artist has most to contend with, and against which he has to employ all his strength. Many a piece of furniture or utensil, well-known and quite indispensable in former times, is now almost forgotten and has been supplanted by numberless ephemeral productions and fancy articles, which in their turn have disappeared. Or else they have sunk down to the level of the „slop-shop“ goods which, made by the dozen, and stripped of the original artistic form, are devoid of true beauty and elegance, thus furnishing insipid, unsatisfactory productions of mere utilitarian character, which find admission into the household amongst all the different classes of society merely through the single recommendation of their cheapness.

The knocker, once the ornament of almost every door during the Middle-Ages and Renaissance, has not been spared a similar lot. These graceful creations of many an artistic mind, often the charming centre-piece of the decorative device of a door, are highly interesting by their excellent motives, the main features of the design. Today nothing remains of all this; quite plain where we still find them, they have had in many instances to give place to the bell or the pneumatic or electric apparatus with its plain round button for means of communication and sign of existence, an apparatus which, no doubt, answers its purpose much better by the shrill sound of the bell than by the heavy thumps of the bronze knocker on the massive metal-mounted door.

If we consider attentively the extant specimens of this article which show so much variety and beauty of ornamental and figure-subjects, we observe two principal groups, determined by the material and manufacture, which mark the chief features of the style and tendency of metal-works, viz., that of wrought iron and bronze. We are particularly rich in works of the first category and the elaborate skill and dexterity evinced in mediæval smith-work is well known. This department in art which appears so limited in its range can show however works which will rank amongst the first in the history of the Useful Arts, both on account of their intrinsic value which they derive directly from the master's hand, and of the boldness and elegance in the treatment of the material by which they are distinguished.

The typical feature of the wrought knocker is naturally the ring, this being not only the means of communication, but also the handle for moving the massive door itself. The ring suspended from some floral

ornament is marked by bold mouldings, or the composition is more elaborate in design, showing two interlaced snakes or dragons devouring each other. During the later period of the fourteenth and fifteenth centuries the ring is flatter and broader, finishing in a point towards its lower end and often decorated with Flamboyant tracery. Here again we meet with that incongruity by which Gothic Art was often marked, viz., the imitation of purely architectonic forms in the creations of the Useful Arts. For it is certainly not beautiful, nor can it be in any way justified, if the ring of a door handle is filled in with simulated window tracery.

The contours of the tracery were frequently relieved by red or blue parchment, or cloth placed behind the pierced ground, traces of which are often found in ancient works of that age. On the decline of Gothic Art, during the time of Mediæval extravagance, when conventional tracery and mullions degenerated into natural ramifications and scroll-work, the knocker was of course subjected to a similar treatment. Following the tendency of late Gothic Art it was sometimes transformed into a mere architectural structure taking at one time the shape of a hook affixed to mountings decorated with tracery, at another even that of a whole tower with battlements and parapets. The simple metal flower or floral ornament, worked from a sheet of malleable iron either flat or embossed, is generally very beautiful in design, and in its pure outlines and excellent disposition of the main-lines of very good effect.

Italy especially has to show many excellent creations of the metal-worker; Siena and Florence, in the well-known door-handles and torch-holders of the palaces Strozzi and Guadagni by Caparra, preserve works which by their elegant mouldings and the repose of the masses are characteristic specimens of the early period of the Renaissance then just dawning, while they exhibit still the Mediæval treatment of the material. The ring of the Guadagni palace, the door of which like those of almost all the Florentine palaces was protected by great nails against the strikes of the besieger's axe, is enriched with dragons whose severe conventional contours are merely beaten into the surface without affecting the main-lines.

Italian bronze castings are still very superior specimens of works of that kind. The revival of the antique, and the improvement and refinement of design and workmanship acted upon the artist as a powerful stimulant for the exercise of his creative power, and for lavishing, in noble emulation, the rich fruit of his imagination even on comparatively insignificant objects.

The early Renaissance period on the whole preserved the form of the ring, as shown by numerous specimens on the doors of many houses of almost all Italian towns, and on gates of churches and sacristies, the door-handle of Sta. Croce pulpit being an excellent example of simple beauty and elegance.

The greater part of these productions date from the later Renaissance period up to the sixteenth and seventeenth centuries; an epoch in which mannerism already fettered High Art, but in which also fresh impulse and development were lent to the Useful Arts and especially to the manufacture of bronzes, mastering the accomplishment of every possible task. For although Ghiberti had previously reached the highest degree of excellence in the treatment of relief metal work, the casting of statuary work was brought to perfection by the masters of a later period only, of which class Giovanni da Bologna may be cited as the best representative.

It is true that only few knockers still extant can be ascribed to him; still he was the centre of a set of artists to whom, working in the same spirit, we owe many excellent productions. The artistic conception of these works is generally characterised by the grouping of human and animal figures, of masks and emblems into the shape of a ring, or freely combined in some other arrangement, in which particular regard was paid to the considerable weight necessary for the functions of the knocker. Two winged syrens arranged as a ring, or dolphins and amorini of very charming design, form the graceful motives on which the imagination of the artist has seized for the exercise of his skill. A lion with two eagles, rams' heads, and wreaths of fruit and flowers form the decorative device of a specimen at Bologna, a cowering satyr on a bracket that of another at Padua, a Venus with two amorini mounted on dolphins that of a third in Capo d'Istria. The celebrated knocker from the Pisani palace at Venice representing Neptune holding the trident, and two rampant sea-horses is repeatedly chosen by the artist as subject for his creation; we find it also amongst the sketches of Perin del Vaga who added flowing drapery to the figures in his composition.

Bologna and Ferrara are rich in handsome knockers, the door of almost every palace and house exhibiting this ornament. The loggias of the streets of these towns show a variety of these bronze castings, although of course the style of manufacture allowed and aided the multiplication of favorite specimens. The same hand that devised the knocker has often decorated the whole door, and principally the lock-plate gives frequent occasion for the display of the artist's fancy, being enriched now with some beautiful, characteristic mask, now with some animal's head with wide-opened jaws.

The careful examination of this comparatively unimportant object has shown how a period, in which artistic genius was highly valued, and true art and its tendencies understood, and supported by the people at large, and cultivated with innate national taste, produced genuine works of art, combining fitness of purpose with beauty of form: Imbued with the same principles we may achieve similar results.

Fig. 1.

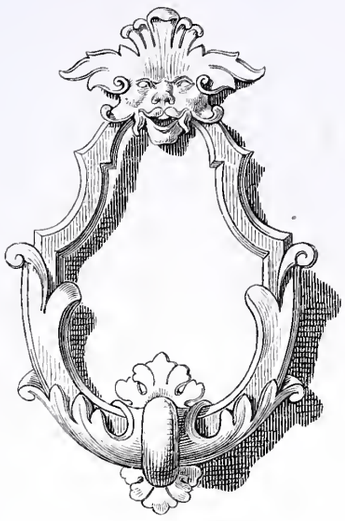


Fig. 2.

Fig. 3.

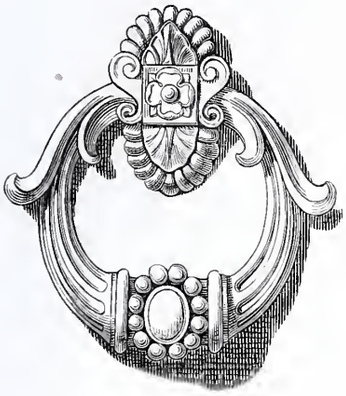


Fig. 4.

Fig. 5.

Fig. 6.

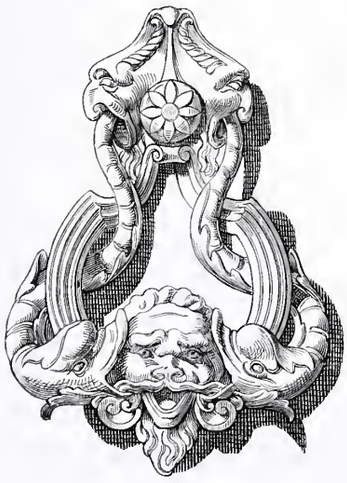


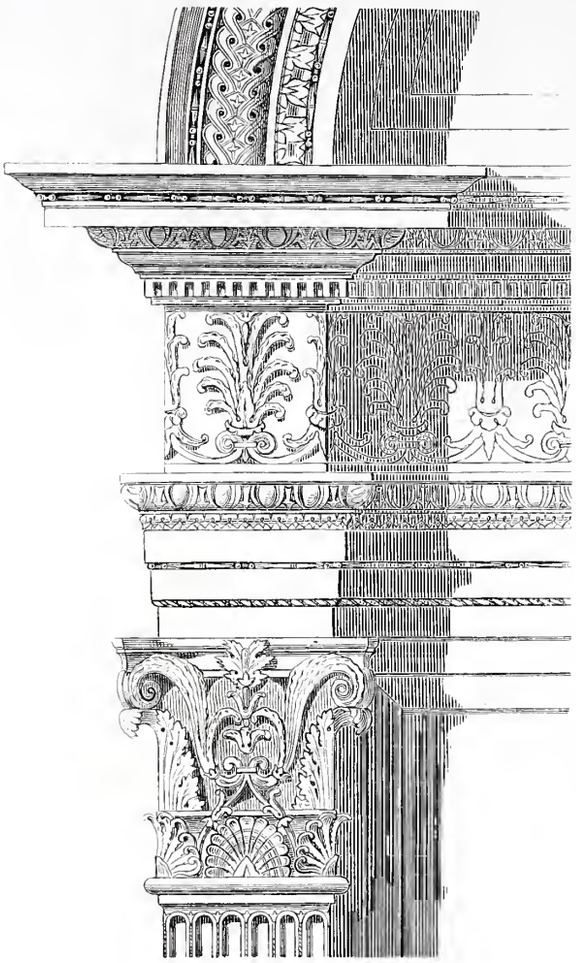
Fig. 7.

Fig. 8.

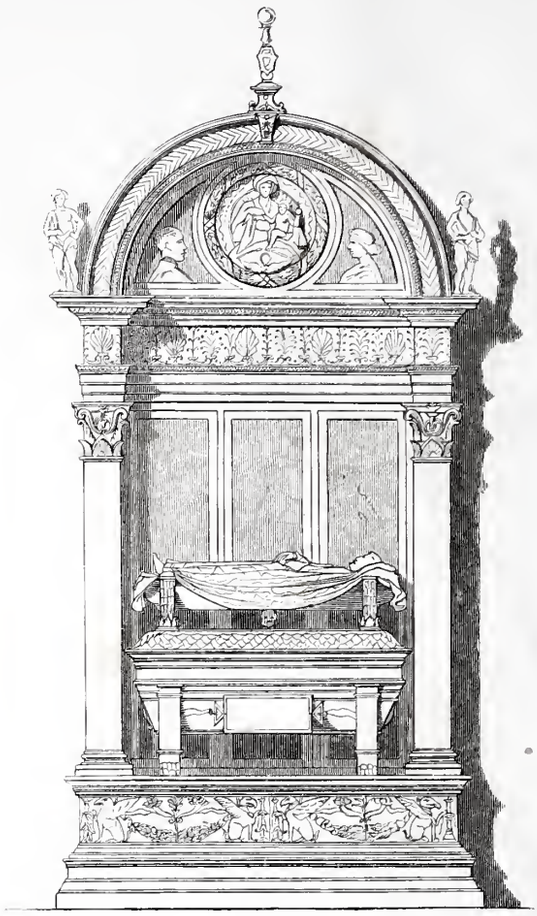
Fig. 1. From the Strada San Stefano, Bologna.
» 2. » » Bevilaqua Palace, Bologna.
» 3. » » Strada delle Asse, Bologna.
» 4. » » Borgo S. Croce, Florence.

Fig. 5. From the Austrian Museum.
» 6. » » Strada delle Asse, Bologna.
» 7. » » Strada San Mamolo, Bologna.
» 8. » » Pulpit door of S. Croce, Florence.

Specimens of Ornamentation.



No. 2.



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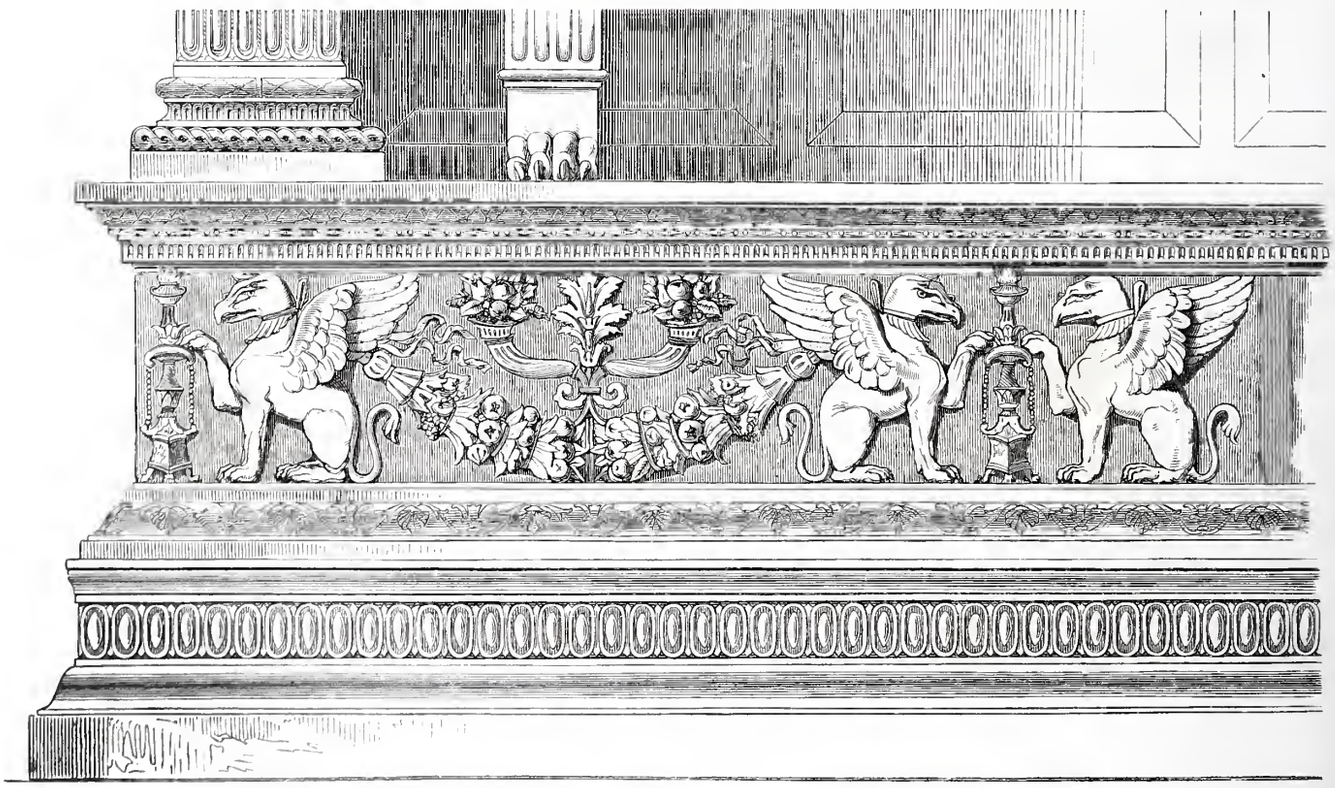
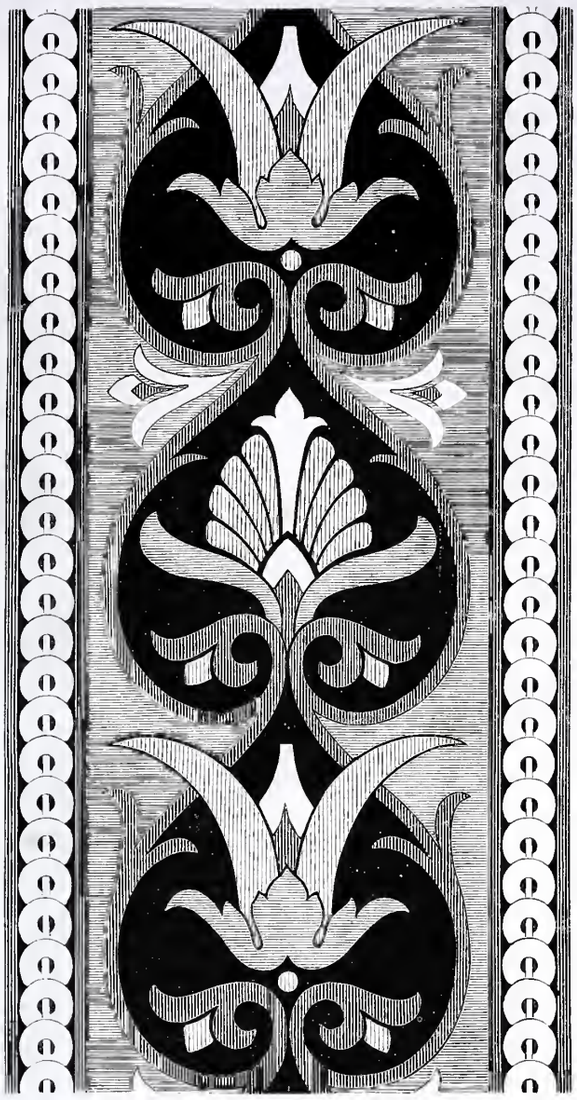


No. 3.

Nos. 1—3. Sepulchral Monument of Pietro Noccto, by M. Civitale in Lucca Cathedral; Sixteenth Century.
No. 1. Front Elevation. — Nos. 2 and 3. Details of Pedestal and Cornice; 1/15 of real size. — The monument, executed in white marble is inlaid with porphyry, indicated by the darker shading in No. 1, the ground of figures of semicircle being serpentine. The ornaments, frieze and capitals picked out in gold: the candelabrum surmounting the whole entirely gilt.



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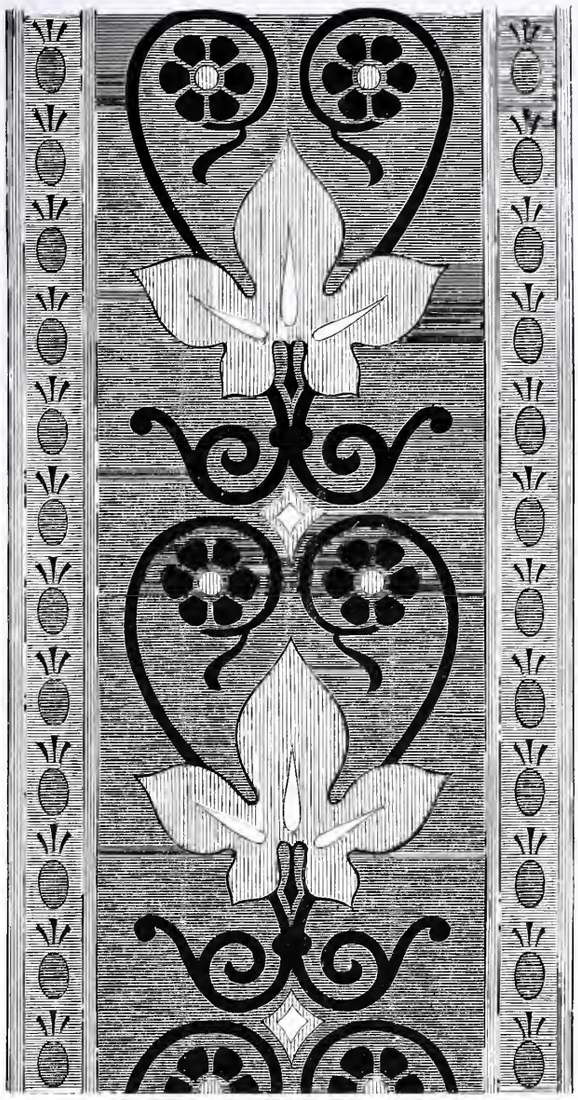

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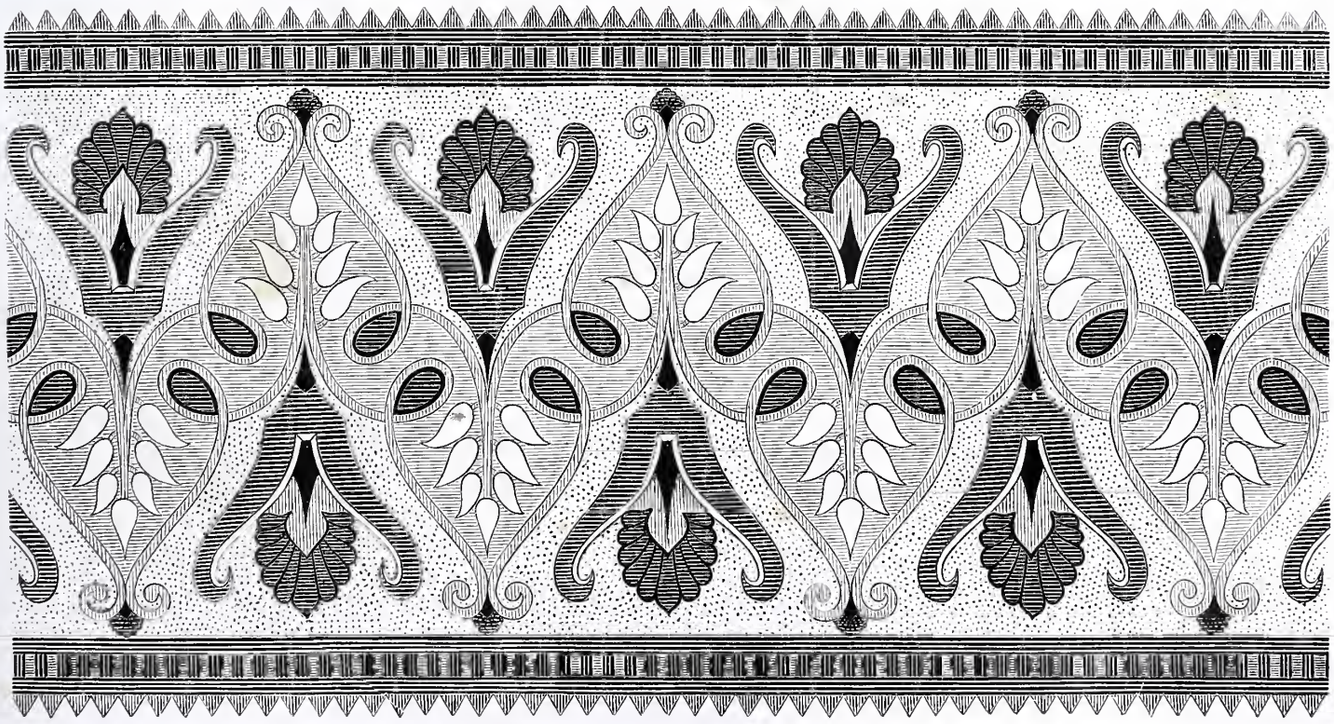
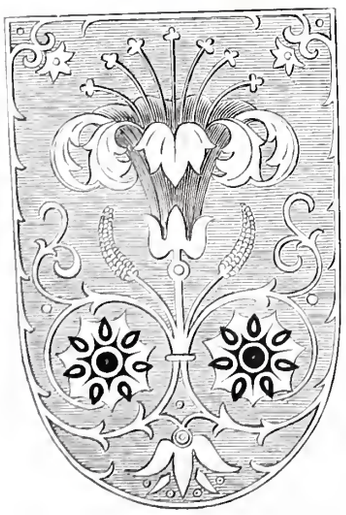


No. 6.

Nos. 4—6. Vertical and horizontal Border Patterns for Apartments.

Nos. 7 and 8.



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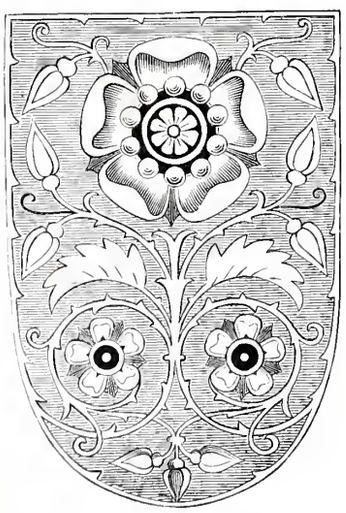
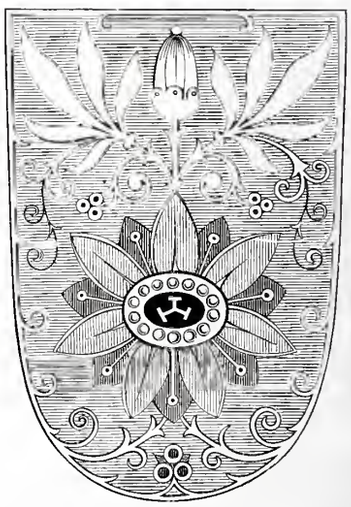
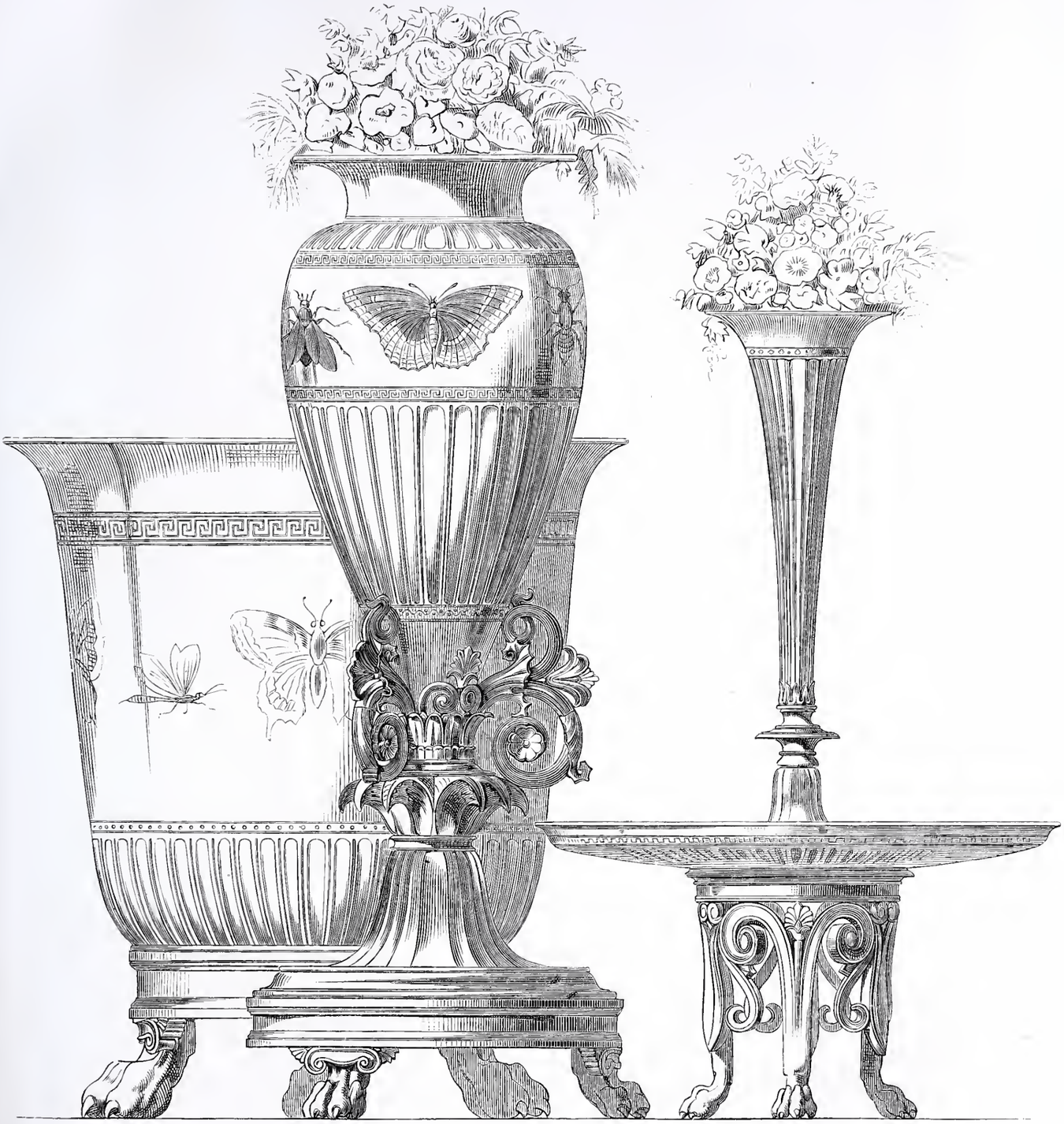


No. 10.



No. 11.

Nos. 7—11. Modern Surface Ornament, executed on opaque glass by Messrs. J. and L. Lobmeyr, Vienna. — The dotted parts of design representing gold, the horizontal shading light blue, the dark shading vermillion.



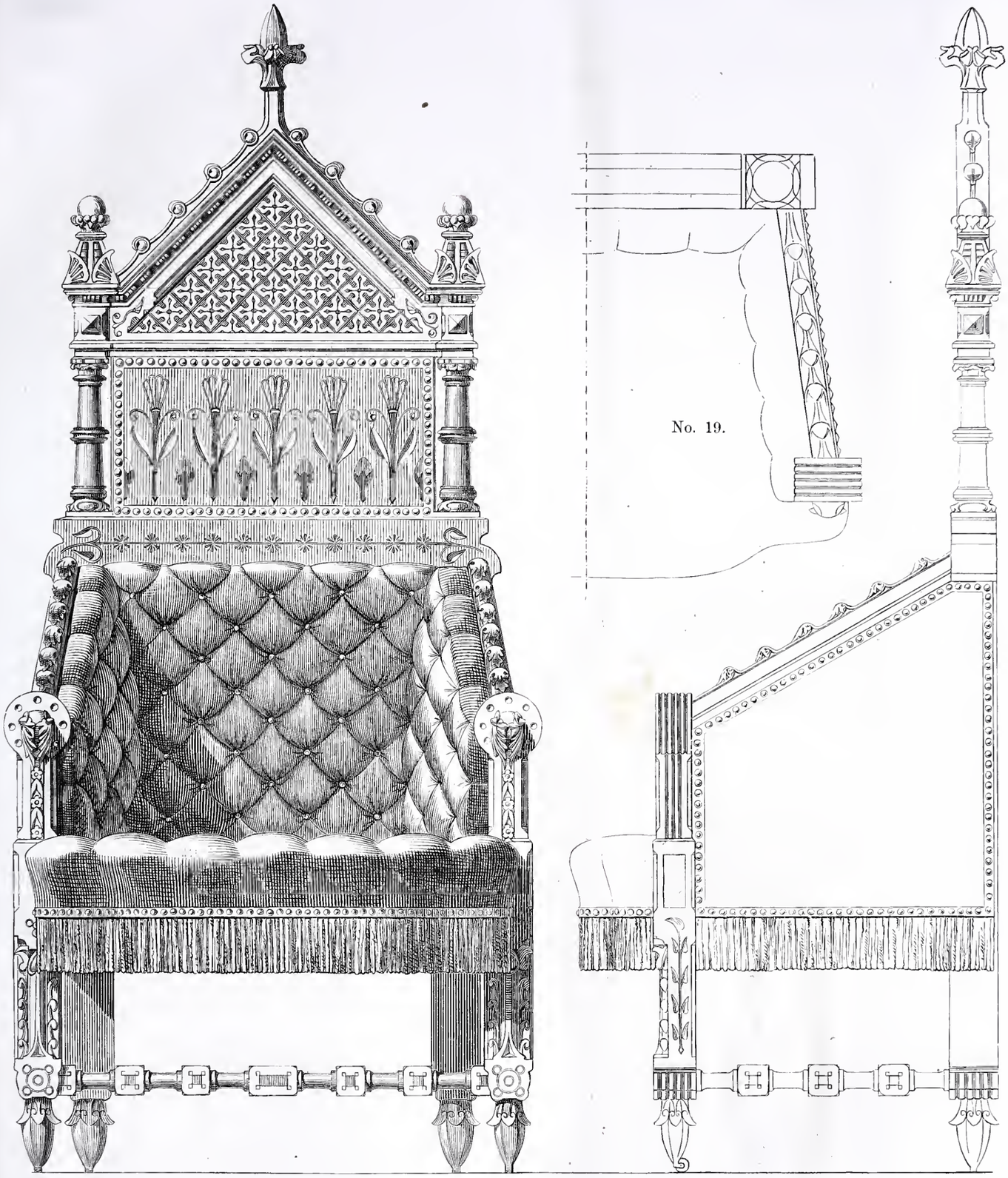
No. 12. No. 13. No. 14.

Nos. 12—14. Flower-pots, Vases, and Fruit-stand in crystal with metal mounts; 1/2 of real size; executed by Messrs. J. und L. Lobmeyr, Vienna.

No. 15.

No. 16.

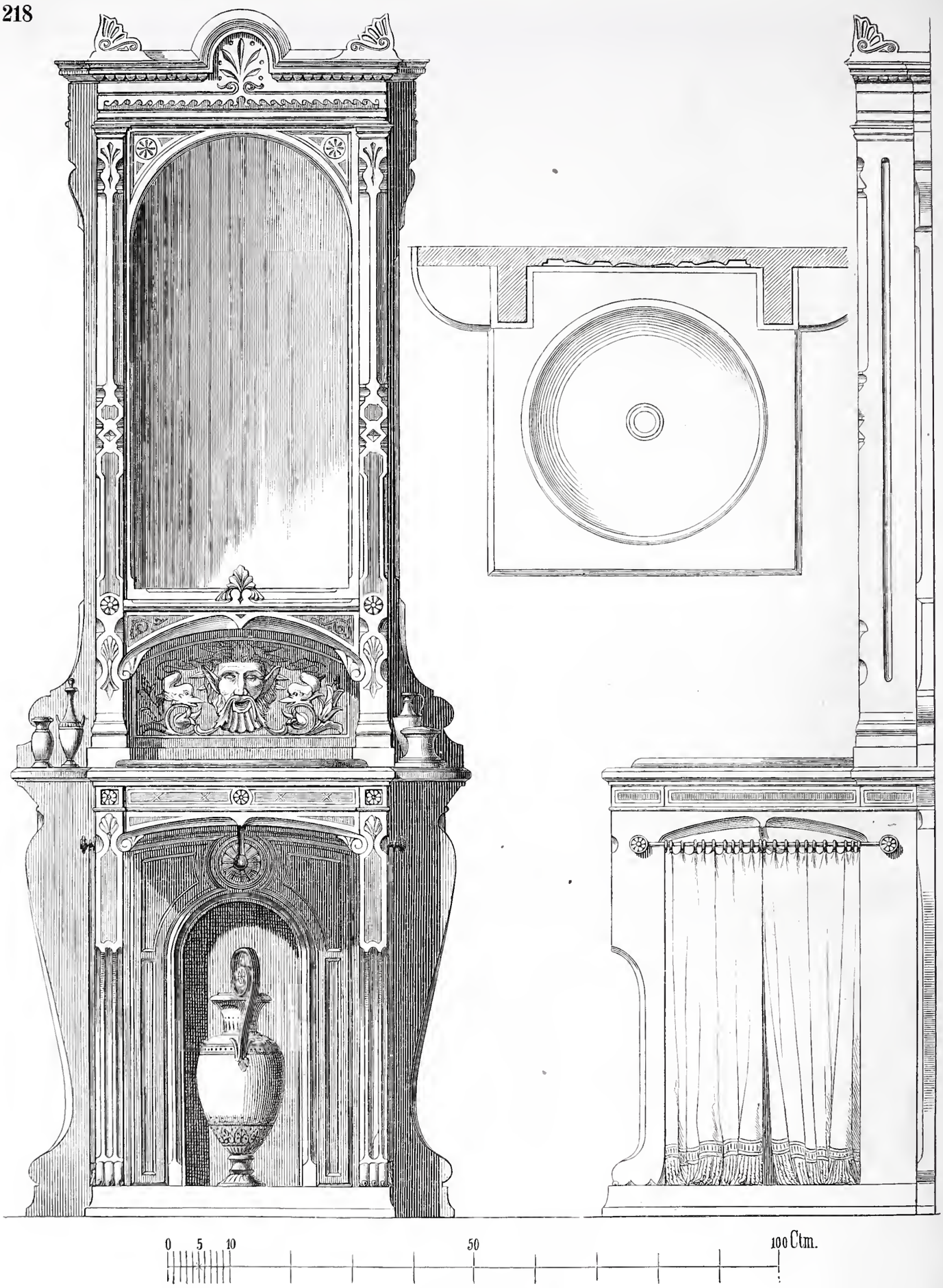
Nos. 15 and 16. Bookcover; by MM. Petit & Massard, Paris. The dark parts of design in red leather, the vertical shading representing the ground-color of the leather, ornaments in blank being gilt. Back of cover, No. 16, shows 5 divisions or compartments.



No. 17. No. 18.

Nos. 17—19. Arm-chair in Modern Gothic. M. P. Bénard, Archt., Paris.

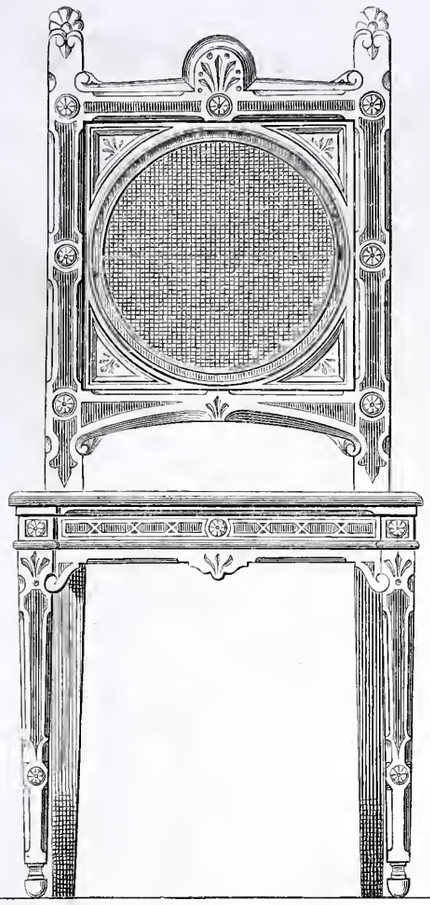
The ornaments, either incised or inlaid, may partly be omitted, as shown by details, No. 5 of Supplement.



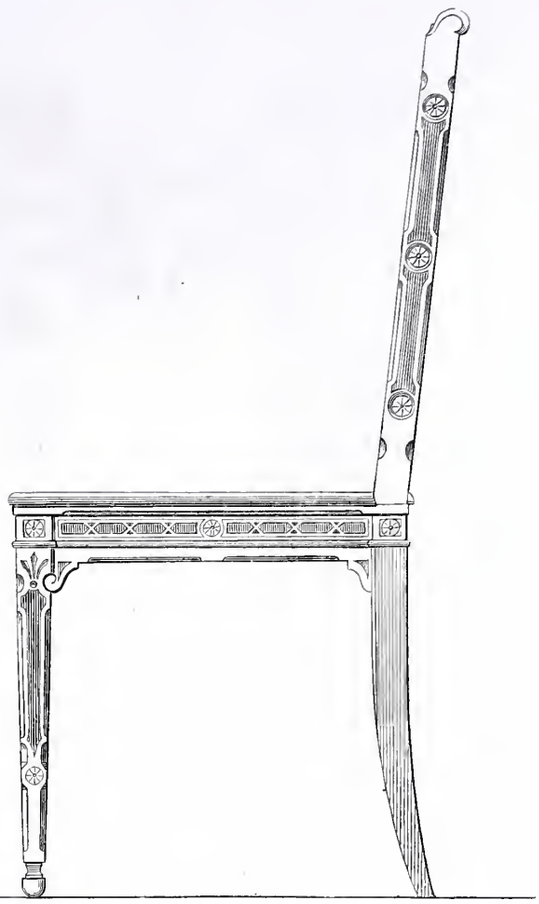
Nos. 20—22.

Nos. 20—22. Washhand-stand with Pier-glass. Mr. Rehlender, Archt., Berlin.

The chamfers and ornamental parts, in opposition to the polish of the furniture in light ash, are mat, the latter being partly surface ornament, partly carved, the flowers especially deeply sunk. The plan shows two projecting corner brackets for placing toilet-objects. A tap projecting from mouth of mask under glass throws the water into the basin. The slab is marble, the mask and ornament bronzed zinc. For details see Supplement Nos. 1 and 2.



No. 23.



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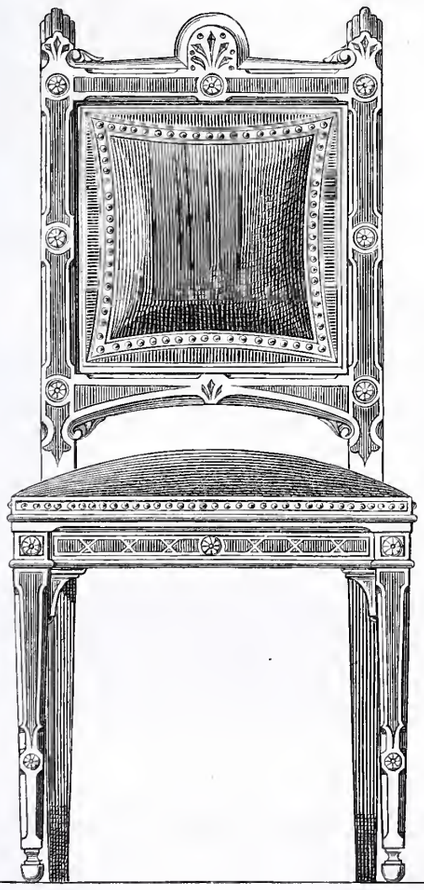

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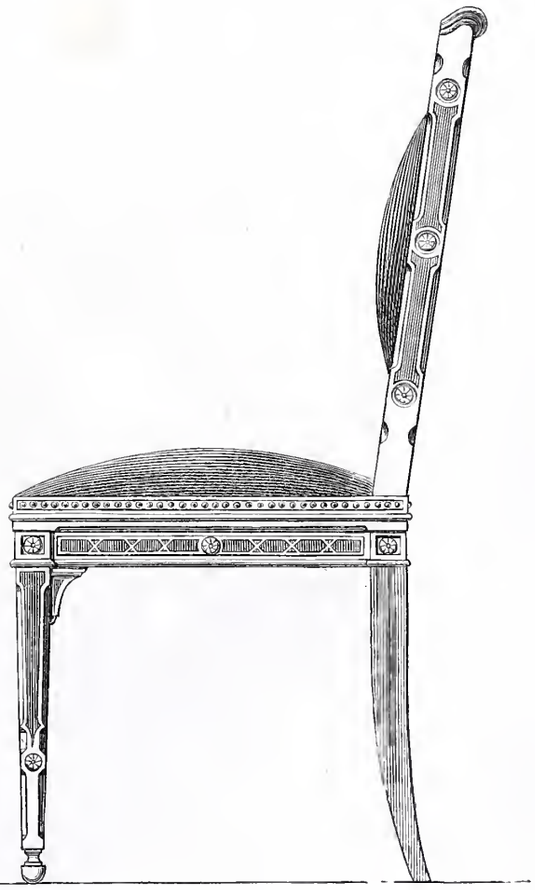
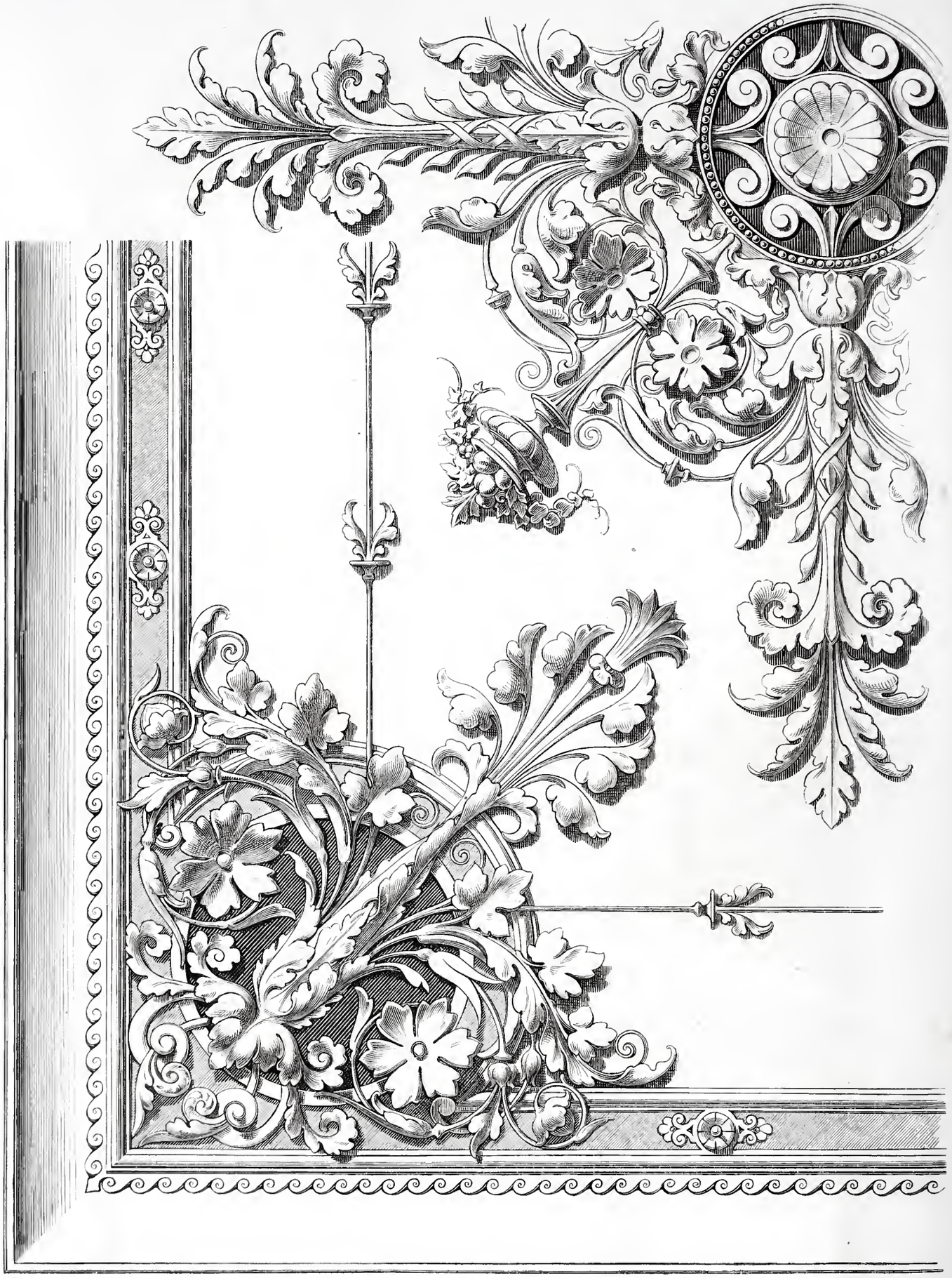


No. 26.

Nos. 23—26. Cane-bottom and Stuffed Chairs, Mr. Rehlender, Archt., Berlin.
The chairs, belonging to the same set as Nos. 20—22, are executed in the same style. Details in Nos. 3 and 4 of Supplement.



Nos. 27 and 28.

Nos. 27 and 28. Centre and Cornerpieces for Stucco Ceiling. Mr. A. Tœpfer, Augsburg. The color, indicated by the shaded parts is but sparingly used, being merely intended to set off the plastic forms of the ornaments by a warm tint.

Nos. 29—36. Revolver Mr. F. Barth, Munich. The handle, No. 29 to be worked in ivory, No. 32 either wood or ivory; Nos. 34—36 representing a dance of the dead, disposed round the chamber.

No. 38. No. 37.

Nos. 37 and 38. Sepulchral Stone, Mr. Wolanek, Vienna.

No. 39.

No. 39. Bronze Chandelier, executed by Mr. D. Hollenbach. Vienna.

VARIOUS.

Historical Notes on Earthenware.

Amongst the various branches of the potter's art, that of preparing fine earthenware was certainly discovered last, and may be termed modern in comparison with the more common or enamelled productions.

Clay-wares composed of a soft, porous, calcareous mass, covered with enamel, were first made by the Arabs, and introduced by them into Spain. The celebrated Palace of the Alhambra, built in the year 1273 by Mohamed Ben Alhamar, is profusely decorated with tablets of earthenware, and with urns of the same substance. A knowledge of earthenware was first introduced into Italy by the Arabs (1415); but it appears that the manufacture of pottery was discovered independently by the Florentine sculptor, Lucca della Robbia (1338 to 1430), who cultivated it with great assiduity and success, as a means of embodying artistic conceptions. A grand-

child of Lucca carried the art of his ancestor into France, about the year 1530, where it sunk into oblivion, until it was again revived about the year 1560, by Bernhard de Palissy, who endeavoured to imitate the Italian models. About the same time (1520), earthenware vessels were made at Nuremberg, while the celebrated works at Delft in Holland were established in the year 1660. It is lastly well authenticated that enamelled earthenware was manufactured in Persia in the 17th century.

Specimens of fine French earthenware are said to be in existence dating from the time of Henry II., therefore in the 16th century; but the real starting point of this branch of the manufacture of pottery, for which, from its gradual development, no definite period can be fixed, is much later, and in its present form is decidedly of English origin. The use of ground quartz was first introduced by Th. Astbury, in the beginning of the 18th century. He observed that flint became white when calcined, and employed it as a means of bleaching or rendering pottery white. The communication of color to the glaze was introduced by Sadler and Green; the cream colored ware was discovered by Enoch Wood; but the real founder of English potteries (1730 to 1795) was the celebrated Josiah Wedgwood. He established in the year 1770 the village of Etruria, and by his own discoveries, taste, and industry, completely remodelled and greatly extended this branch of industry.

The name *Fayence*, which is given to this kind of ware abroad, is derived from the town of Faënca, in Italy. The older denomination, Majolica, which was applied to Italian earthenware, is believed to be a corruption of the name Majorca, one of the Balearic Islands.

Preservation of Wood.

Many attempts have been made to increase the durability of wood by the injection of certain solutions, especially that of sulphate of copper. On this subject the Academy of Sciences has received an interesting paper by M. Maurice Boucherie. He states that, when properly effected, the injection of the above-mentioned solution is always beneficial; and that the best way to perform it is by displacing the sap and then letting the wood dry in the air. To prove this assertion, M. Boucherie sent in with his paper a few samples of railway sleepers laid down in 1847, after being prepared in the way mentioned. They had been taken up but a short time ago, and in excellent preservation. They were found to be harder to saw than any common dry wood; their resistance was equal to that of green wood, and their elasticity had been preserved unimpaired. Our author contends however, that it is not the excess of sulphate of copper to which they owe their excellence but to the combination of oxide of copper with the cellulose of the wood. To show the truth of this, he remarks, that if the latter material, or linen or cotton cloth, be impregnated with cupric solutions, and afterwards washed in much water until none of the metal salt be left, it will nevertheless be found that such substances will remain uninjured, however long they may lie buried in the earth; and that if they be afterwards treated with ammonia, oxide of copper will be obtained from them. It is well known that the continual contact of the iron chair with the sleepers is injurious to the wood, and yet in the present case it has not been so, the wood having been used when perfectly dry, after being saturated with the copper solution. The latter is rarely absorbed if the wood contain more than six per cent. of sulphate of iron. *Galignani.*

Oil Painting upon Zinc.

Every painter is aware of the difficulty experienced in making oil colors adhere to articles of sheet zinc. Prof. Bœttger, however, has recently published a process by which it is stated, that the desired result can be accomplished, this process consisting in the previous application, by means of a hard brush, of a mordant, composed of one part of chloride of copper, one part of nitrate of copper, one part of sal ammoniac, and sixty-four parts of water, to which is afterwards added one part of hydrochloric acid. The zinc turns of a deep black immediately after the application, changing after drying (twelve to twenty four hours) to a dirty black, greyish-white shade, upon which any oil color once applied will adhere with the greatest tenacity.

Practical Recipes.

Whitewash for Outside Work. — Take of good quicklime half a bushel, slack in the usual manner and add one pound common salt, half a pound of sulphate of zinc (white vitriol), and one gallon of sweet milk. The salt and the white vitriol should be dissolved before they are added, when the whole should be thoroughly mixed with sufficient water to give the proper consistency. The sooner the mixture is then applied the better.

To Make a Pure Caramel. — The commercial caramel is a solution of burnt sugar in water. It is rarely pure, often containing undecomposed sugar and bitter compounds generated during the heating process. To purify its solution, it should be filtered and alcohol added until no precipitate is thrown down. The precipitate is a dark brown powder, in many instances almost black, and is pure caramel, soluble in water, but insoluble in alcohol.

To Fill Holes in Iron Castings. — Sulphur one part, sal-ammoniac two parts, powdered iron turning eighty parts, make into a thick paste with water immediately before using. The materials should also be kept separate until the time they are wanted. *Scientific American.*

New Tube Well.

The New South Wales correspondent of the *Times*, dating from Sidney, speaks of a tube well, which he considers superior to the "Abyssinian". The tube to be sunk, instead of being shod with a steel point and pierced with holes, is quite open at the bottom, and possesses a free cutting circumference in contact with the ground. It may be sunk through the solid rock. When this is encountered, a jumper is used inside the first tube, and this having pretty free motion within the tube makes a way of larger circumference. For quitting the rubbish a tubular jumper is used, which, when filled with material, is withdrawn and emptied.

To Clean Silver Plate.

Fill a large saucepan with water; put into it one ounce of carbonate of potash and a quarter of a pound of whiting. Now put in all the spoons, forks, and small plate, and boil them for twenty minutes; after which take the saucepan off the fire and allow the liquor to become cold; then take each piece out and polish with soft leather. A soft brush must be used to clean the embossed and engraved parts. *Piesse.*

Black Coloring for Zinc and Brass.

In order to obtain a durable black color for zinc work, clean the object with a mixture of finely powdered quartz and sulphuric acid, then dip it in a solution of 4 parts ammoniacal sulphate of nickel and 40 parts water to which add 1 part sulphuric acid; after a few moments' immersion the object must be well washed and dried. The black coat adheres perfectly to zinc, while, if obtained by means of nitrate or chloride of copper, it is not durable. If the object is scratched with a wire-brush it takes a beautiful bronze color.

In order to give a fine black stain to brass-work, dip it in a liquid heated to 122° F., and composed of 1/2 part arsenic acid, 1 part hydrochloric acid, 20 parts water and 1/4 part sulphuric acid, after which wash and dry it well. If the object, while in this mixture, is touched with a cylinder of zinc, the electric current thereby produced accelerates the deposit of the coat of reduced arsenic.

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Ornamental Iron-work.

By Mr. Jacob Falke.

Of all the branches of modern Art-Industry, none perhaps has, in an artistic point of view, been so neglected, as ornamental Iron-work. This neglect is indeed only of recent date; for the wrought grilles, gates and railings of our gardens and palaces, as well as other buildings, bear witness that the taste and tendencies of past periods of art up to the present century attached great value to elaborately wrought Iron-work. Nevertheless it seems to have been lately supplanted to a large extent by cast iron. Still the latter will never replace wrought iron, either in respect of its characteristic qualities, or the particular style of ornamentation of which it is susceptible; for notwithstanding the numerous attempts, more or less successful, which have recently been made to appropriate cast-iron for works of art, it has proved altogether rebellious to a truly artistic treatment. To day, when the tendencies of reform in Art-Industry begin to awake a renewed interest for Iron-work, it will seem appropriate to take a short retrospective view of its history in art, to consider its various styles of ornamentation, and to examine how far we may now profit by it, and turn it to good account.

The history of ornamental Iron-work is of recent date for us in Europe. The period of its highest development commences with the craft of the amourer, which, in originating and perfecting plate-armour in the course of the fifteenth century, was truly elaborated into an art. It is true that the excavations of tombs of the Merovingian period show iron ornaments for personal use, elegantly mounted and enriched with silver; but this style of workmanship, which, as it would seem, soon disappeared in Europe, was most likely an ancient inheritance, the home and origin of which might be traced to Asia where it is still extensively practised, as it probably has been from the most remote times.

With the exception of sword-blades, simple casques, etc., the early mediæval period has handed down but few specimens of Iron-work, and only a very small number of them can be ranked as works of art. Where iron might have been suitably employed we find it frequently replaced by brass and bronze, e. g., knockers, of various form and design, bronze lions' heads, etc., still extant. There are however still some specimens of ornamental Iron-work of high artistic value in the Romanesque style and Early Gothic, the most remarkable of which are perhaps the door-hinges of Notre-Dame at Paris, of the second half of the twelfth century. These consist of wrought-iron bands, rather massive and thick in proportion, and worked with admirable precision and elegance, the main stem, from the head of the hinge, throwing off interlaced branches which grow into most elaborate and graceful scroll work, leaves, and flowers, interspersed with all sorts of birds in different positions. They extend over and cover almost the whole door, forming one great ornament of exquisite arrangement and design, and at the same time of great strength and solidity, and representing a most appropriate and charming enrichment. To heighten the effect, all the iron was formerly gilt, the ground being red (see fig. 1).

The technical and artistic principles to which expression is given by the Iron-work of the door of Notre-Dame Cathedral was faithfully perpetuated and further developed by Gothic art, through many examples of great richness and beauty of form. They all show a true understanding of the characteristic property of wrought iron, namely that of stretching and extending under the hammer. In proportion as the iron bars are flattened and beaten under its strokes, they are separated lengthways into two or more bands and branches, starting from the middle, and extending more and more over the surface. The ends receiving the same treatment, the whole forms an ornament of great richness and elegance, the extremities sometimes enriched with curls and leaves, ocasionally with animals' heads, etc., as pointed out in the specimen above referred to.

It would be difficult to find an example in the thirteenth and fourteenth centuries which could bear comparison with the doors of Notre-Dame in regard to beauty of invention, brilliancy of effect, and precision of workmanship. During the fifteenth century the per-

fection attained in the art of the armourer could not but influence that of the smith and metal worker, in consequence of which ornamental Iron-work and its manufacture received a more extensive and manifold development, and a more delicate treatment and execution. The bands and branches growing into a most elaborate and graceful scroll-work of regular design and form, stamped with ribs and veins, show a more exact rendering of vegetable types. To enhance the effect by light and shade they were partly embossed and hammered from the under surface, adding to the flat treatment the life and play of relief work. The gilding, used in Norman or Romanesque style was, for more delicate work, replaced by tinning, rendering the ornament brilliant like silver, relieved by red or blue ground of parchment, leather or simply paint. The same decoration, which owed its origin to the manufacture of door-hinges, was adopted for all sorts of smith-work, framing the cases of locks, mounting their corners, or covering them with pierced ornament. Particularly finials, and escutcheons on which the knocker or ring-handle was fixed show a profusion of ornament of astonishing beauty and great delicacy of execution (see fig. 2).

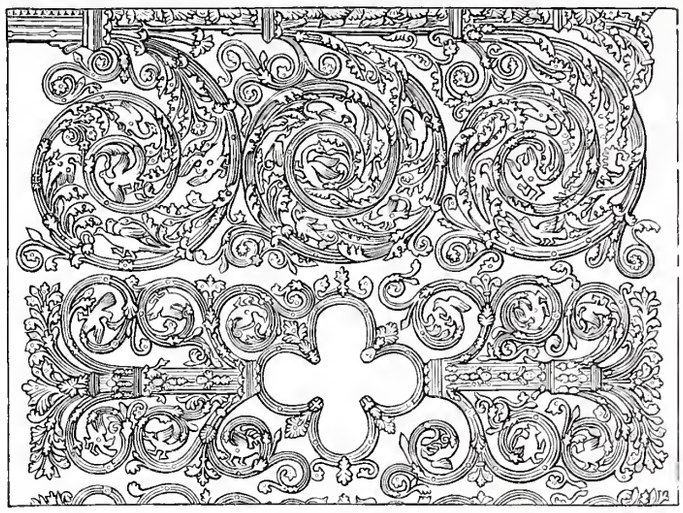


Fig. 1.
Door-hinges from Notre-Dame, Paris.
Twelfth century work.

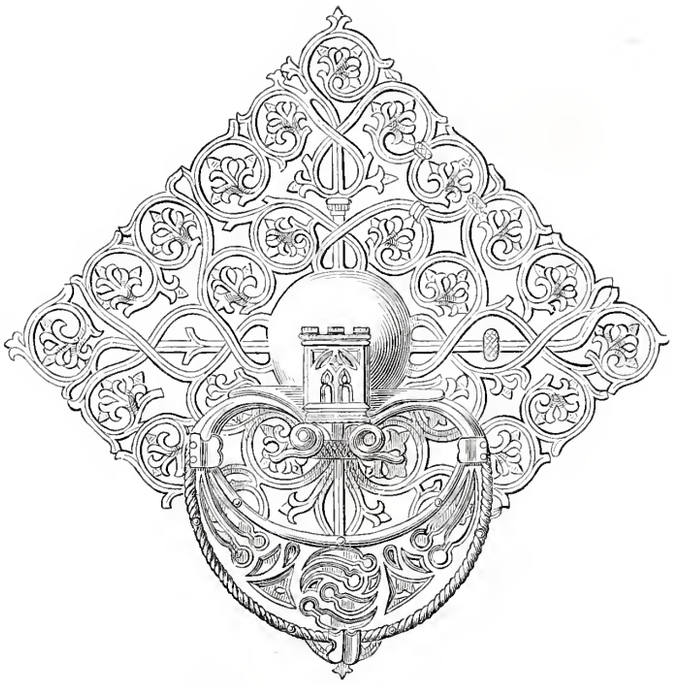


Fig. 2.
Knocker with ornamental Escutcheon.
Fifteenth century work.

This style of ornamentation, although the most frequent, does not apply to all the works of art in Iron-work of Gothic date. Just as Gothic art, in its degenerating course during the fifteenth century, forced its purely architectonic ornament, especially tracery, upon other branches of art, particularly to that of the goldsmith, so also Iron-work, often intimately combined with Architecture, did not escape. Escutcheons of knockers were transformed into Gothic rose-windows; locks, and mountings of doors and other objects were enriched with a variety of pinnacles, crockets, finials and window-tracery, often Flamboyant in style and design, nay sometimes like miniature churches surmounted by tabernacle-work, buttresses, gable-ends, etc. This, certainly, is by no means a commendable treatment even for modern Gothic buildings. Also the rich mouldings, panelling, and featherings which were so extensively seen in ornamental wood carvings of the period were all imitated in Iron-work, formed into locks, door-handles, etc.

With the new style in Architecture the sixteenth century brought also a new style of ornamentation for smith-work. For more important, objects hammered, or *repoussé* work was still preferred, and for a long time even in great favour. Especially gates, rails, grilles for the upper parts of arched doors, open screens, etc., were wrought with great skill and solidity, the ornamental motives being formed of small bars, turned into spiral-like scrolls, throwing off tendrils, continually interlacing and crossing each other, and forming new spirals and scrolls, rivetted together, with bold flowers and leaves, interspersed sometimes with birds or other animal types, and even small human figures. Naturally enough the execution of these objects in a material not very appropriate to such delicate work is rather coarse, and the whole must be considered as mere specimens of decoration. Other objects which allowed free scope to the inventive genius and skill of the art-worker were the armatures of wells, and the iron-work of windows, which, on the ground-floor especially, were often completely secured with elaborate screen-work. The heads of the stanchions were, from the beginning of the seventeenth century, frequently enriched with flowers and finials of bold design, affording great variety of form, which soon became very favorite ornaments, used for all sorts of purposes, as, e. g., for bell-pulls in old houses which are seen in many places of Upper-Austria. The style of ornamentation changing with the ever-varying taste of the period, the heads of stanchions and other decorative-features of railings, screens, etc., received during the eighteenth century all the overcharged and capricious scrollwork, which marks the Rococo period. Nevertheless we cannot withhold our admiration of the

creations of that advanced date, which, taken by themselves and independently of style, present most remarkable and astonishing works. They are, if not in form yet in invention and workmanship, the natural expression of true taste and breadth of design.

Many household articles in iron, used in those centuries, particularly utensils for lighting and heating, originated under the hammer. In Italian palaces from the fifteenth century we still find splendid standards and torch-holders, which, without partaking too much of the architectural type of the time, combine pureness of style with exquisite beauty of form. From the sixteenth century many admirably worked fire-dogs and screens, mostly of North-Italian and French manufacture are still extant, a beautiful specimen of the former being in possession of the Austrian Museum. Ponderous and massive as these objects are, they are, although mere black-smith's work, much more in accordance with the demands of a sound and genuine taste, than the comparatively meagre substitutes of polished or gilt brass which decorate our modern fire-side. The wrought-iron candle-sticks, formerly used for domestic purposes were of finer and more elegant execution, showing frequently most graceful and original, but nevertheless quite appropriate forms, their invention and design being entirely in conformity with the manufacture and the purpose of the work.

All the above mentioned articles are however devoid of a more delicate and peculiar ornamentation either in style or manufacture, the mode of decoration being restricted to the use of the hammer and file. Still the finer work of the locksmith adopted much of the decoration which had come into vogue through the art of the armourer, from the early part of the sixteenth century. Partly indeed these works, especially those connected with locks and keys, remained true to their ancient character, the structural form and ornament being still worked by the hammer, while the Gothic types and features, replaced by those of the Renaissance, had to give way to masks, heads, little nude figures, medallions, etc., although rather deficient in the manner of execution. Thus the key-handles, instead of Gothic rose-window tracery, received pierced ornament of the characteristic design and sweep of the Renaissance.

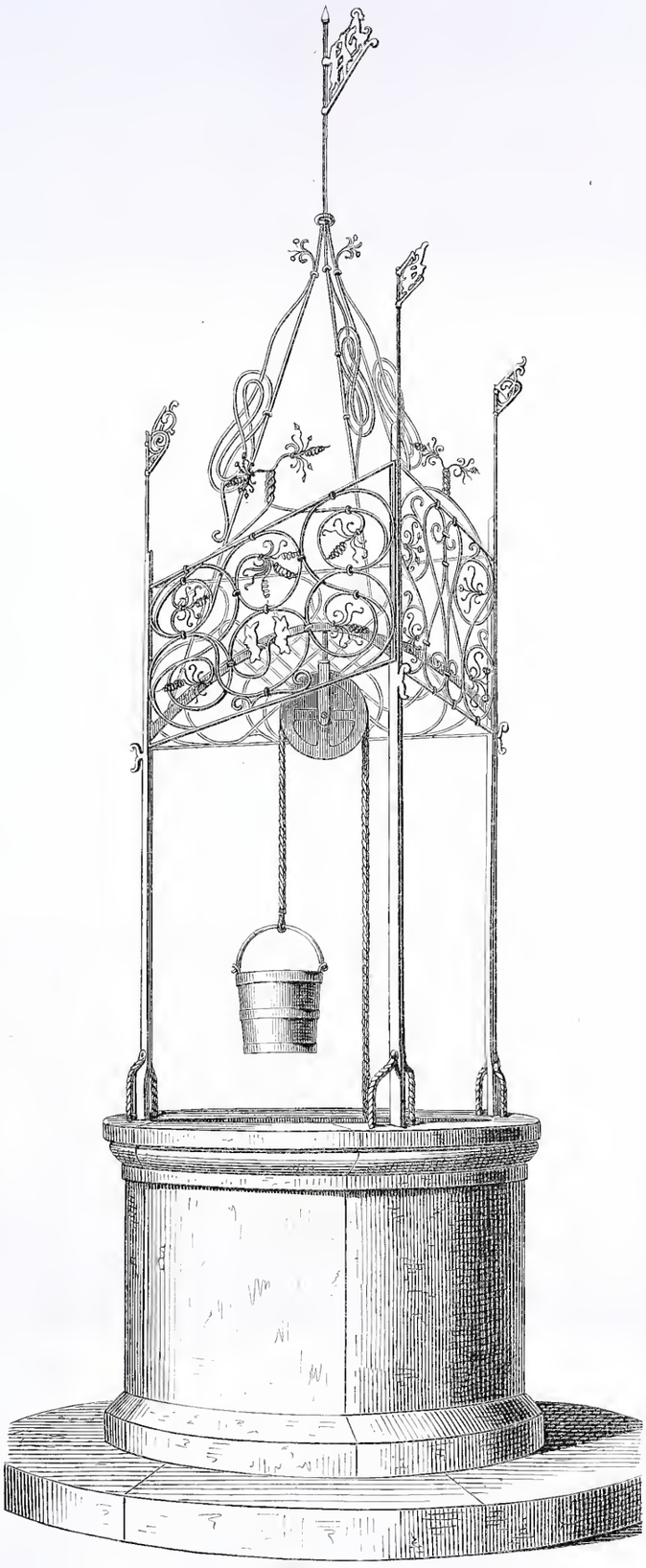


Fig. 3.

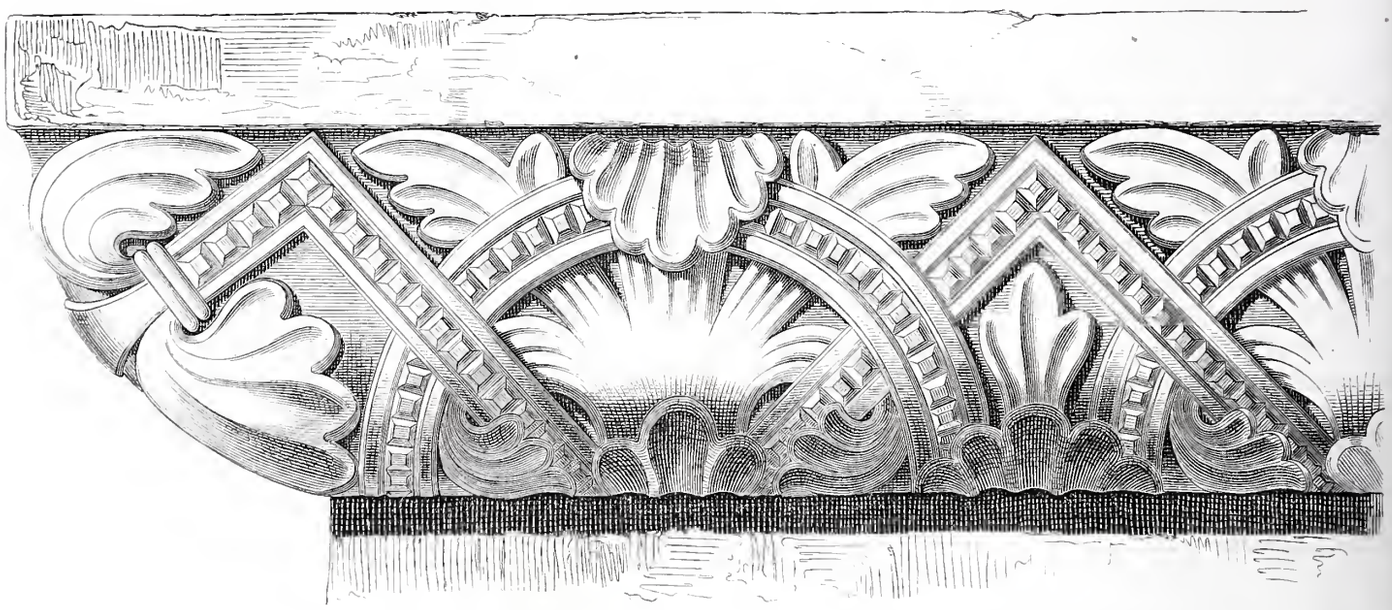
Armature of a well, Neunkirchen, Lower-Austria.
Sixteenth century work.

One principal feature was however entirely altered. While the fifteenth century, as above pointed out, had in preference, used relief treatment for iron-work, the sixteenth century, the period of mechanical inventions and improvements, set a high value on the interior construction of locks, which were frequently very elaborate and complicated pieces of mechanism which, with their manifold and most difficult combinations, had to be worked out with the greatest precision, exactness, and solidity. Numerous specimens of most wonderful skill of this kind have been handed down to us. It may be well to mention here that the locks of the Germanic Museum in Nuremberg, taken from the house of *Augustin Hirschvogel* in *Hirschelgasse*, being the work of that dexterous and skilful artist, still do their office as well as at first, in spite of their complicated mechanism, and the wear and tear of three hundred years. So much labour being bestowed on the interior, and so much attention paid to the mechanism, another and lighter sort of decoration for the exterior would appear to be requisite, in consequence of which the etching of ornament, suggested by the armourer's art was put into requisition for the

decoration of the surface, instead of the relief work formerly used. The ornament was left in blank and highly polished, the ground being etched black, and in order to give it more life and lustre, it was dotted with bright points such as are found in the ancient armours. This mode of decoration was much and richly applied to small iron strong-boxes and caskets, serving for the adornment of parlours and libraries, and offering the requisite surface for such enrichment. Of great lightness and elegance, it was nevertheless a perfectly appropriate style of work, worthy of a revival, and superior to the lacker or varnish painting of our modern iron strong-boxes. In the old specimens of the sixteenth century there is only this fault, that the ornamental patterns, in comparison with the heavy article they have to adorn appear, much too delicate; considered by themselves, they are frequently of high perfection, exhibiting the most beautiful designs, especially those of the German Masters, who greatly excelled in this art. Two remarkable examples of colossal dimension, but most wonderful ornamentation, originally belonging to a monastery and now in the possession of the Austrian Museum, are true *chefs-d'œuvre* of the craft.

The conclusion in our next.

Specimens of Ornamentation.



No. 1.

Nos. 1 and 2. Romanesque Style. — Details of Imposts.

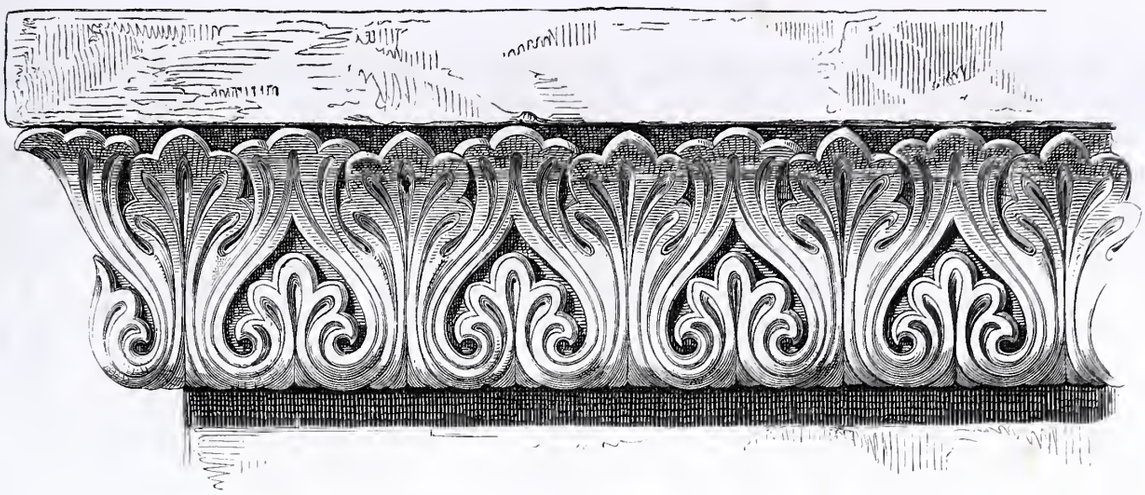
No. 1 from Muenzenberg, Hesse; 12th century, 1/4 of full size.

No. 2 from Church of the order of St. John, Nieder-Weisel, Hesse; end of 12th century, 1/5 full size.

Nos. 3 and 4. Early Gothic. Foliated Jamb-moulding, between Shafts of Porch of Larchand Abbey, 13th century.

Nos. 5—9. Modern Gothic; Iron Stove. — Mr. E. Bœsser, Archt.

No. 5 Front Elevation; No. 6 Detail of pierced Panels; No. 7 Pedestal; Nos. 8 and 9 various Finials for upper part of Stove. Scale of No. 6, 1/4, No. 7, 1/5, Nos. 8 and 9, 1/4 full size.



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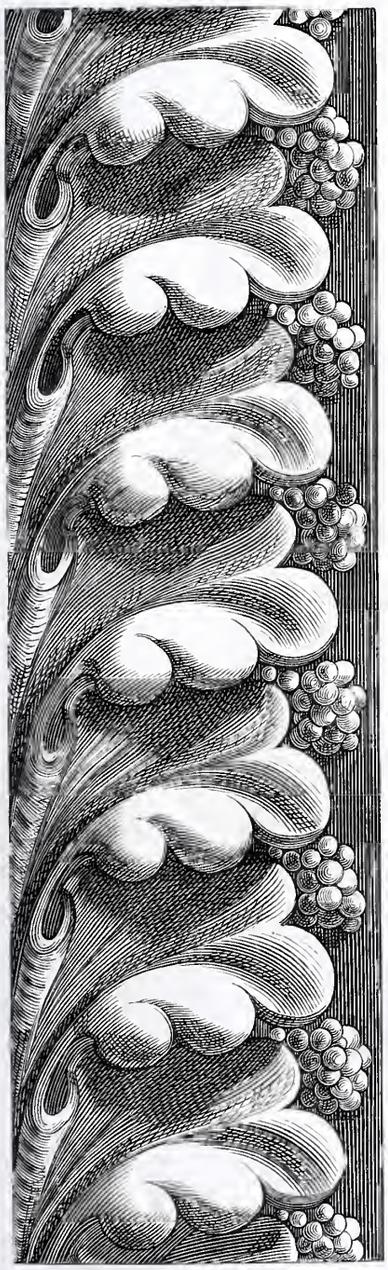

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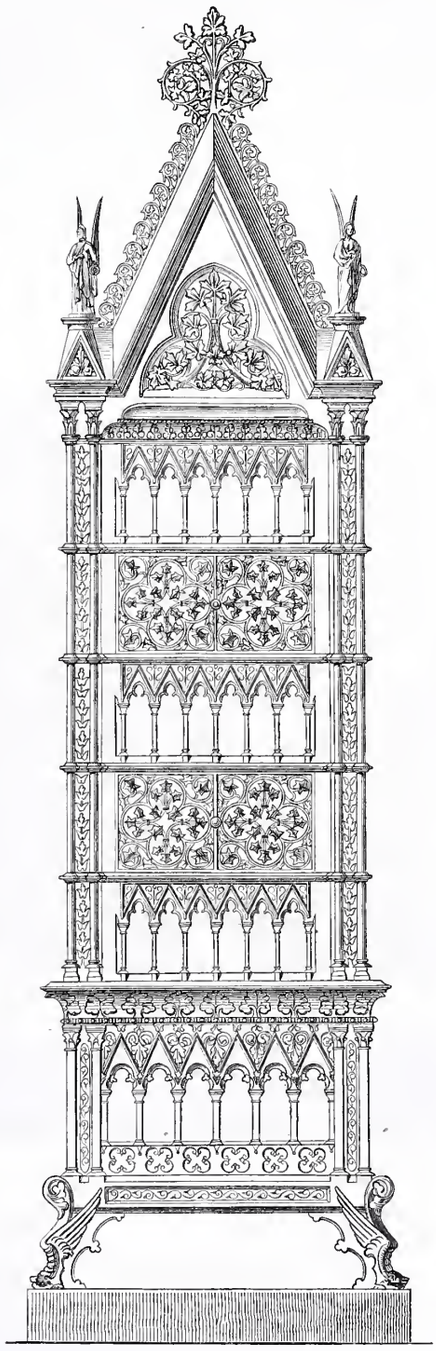

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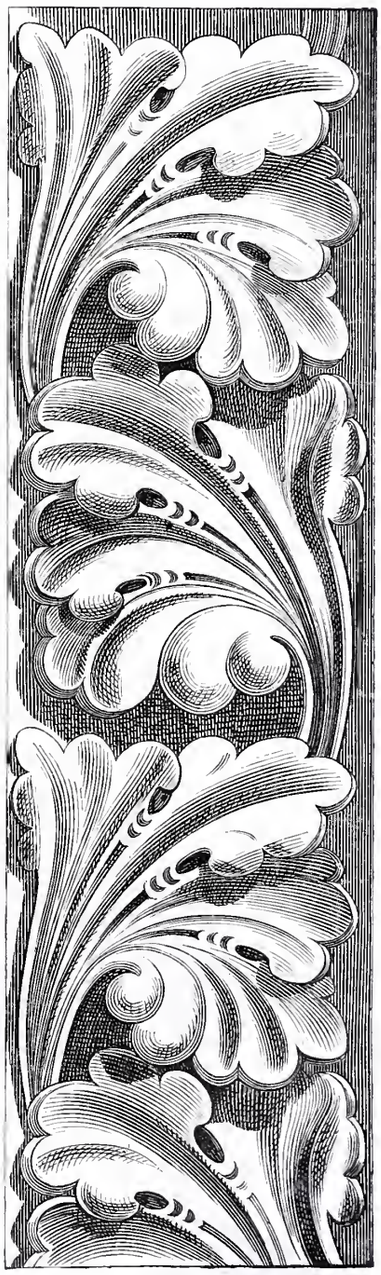

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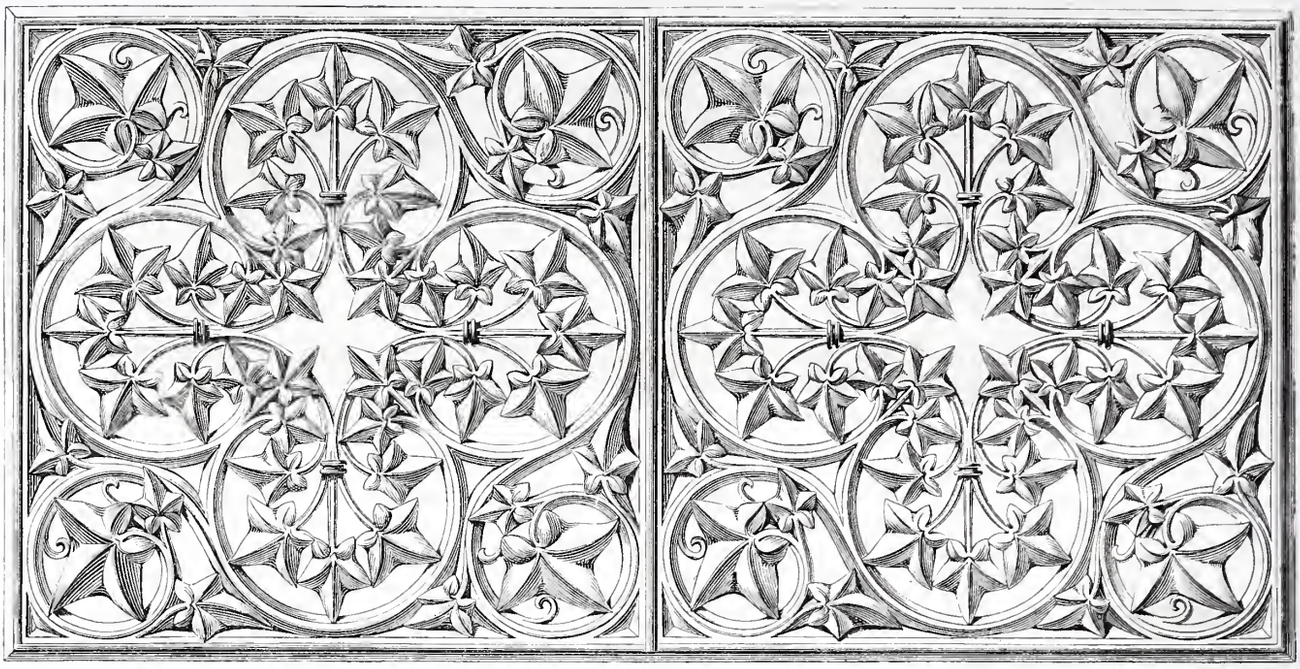

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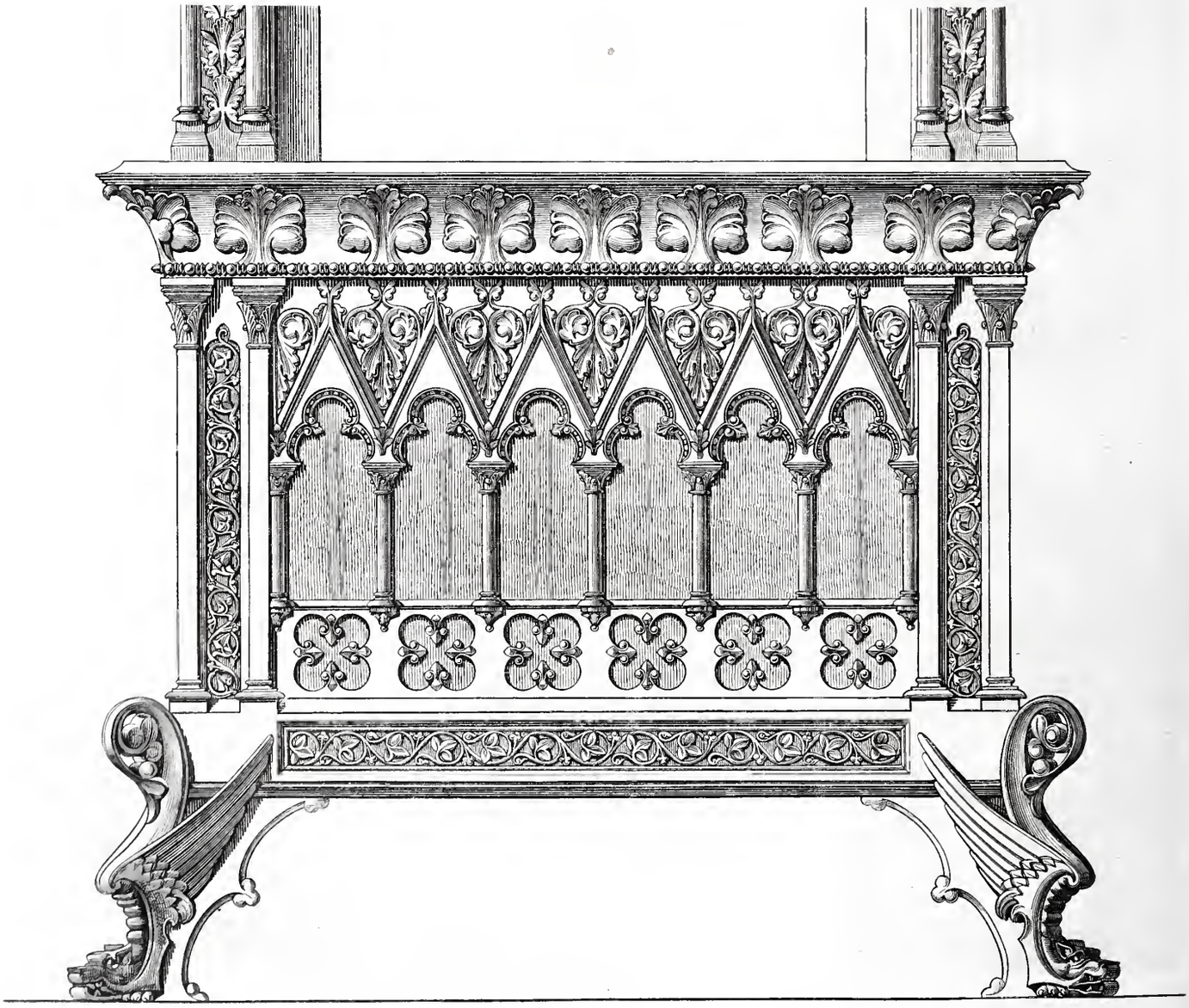

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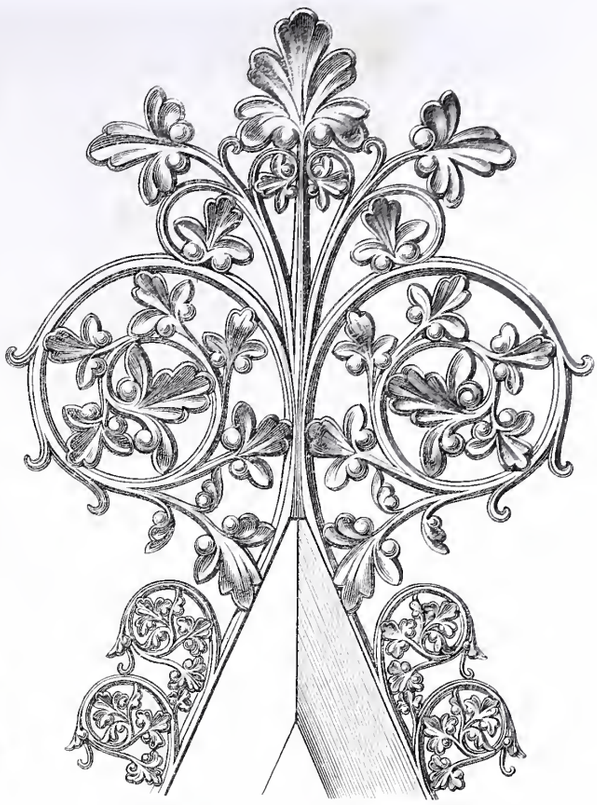

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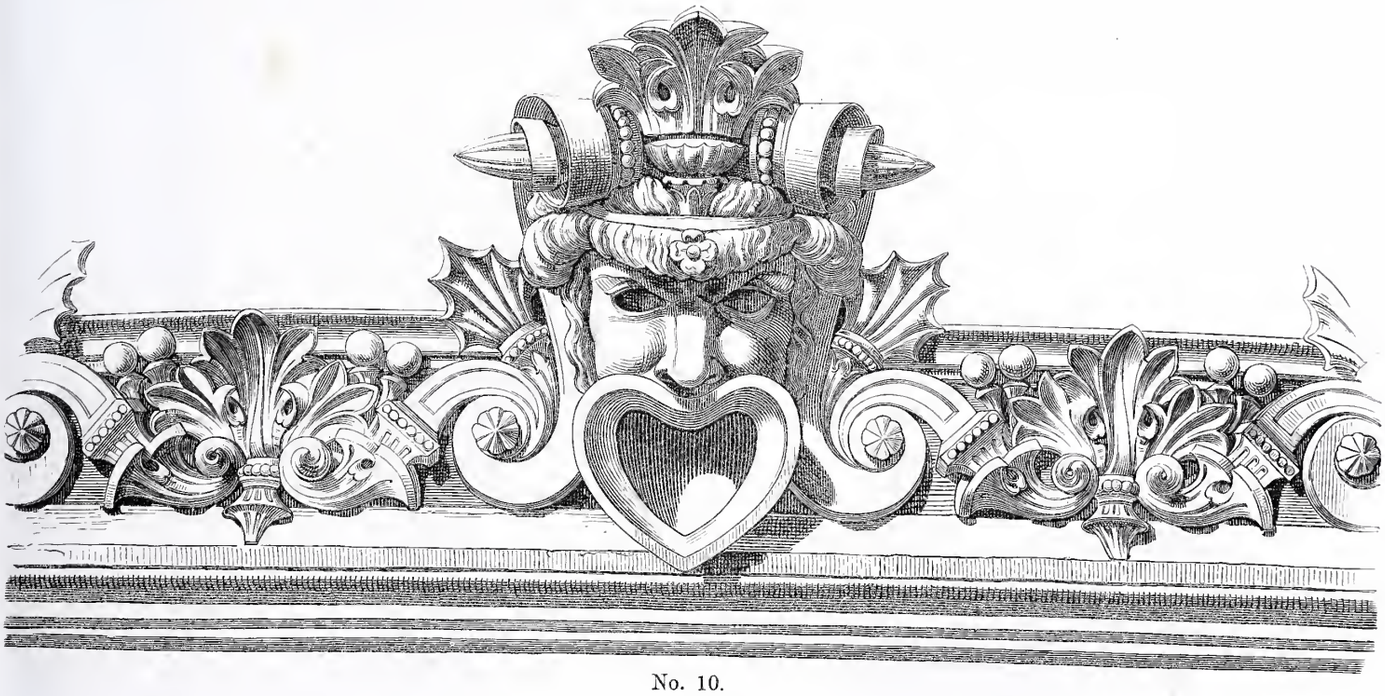
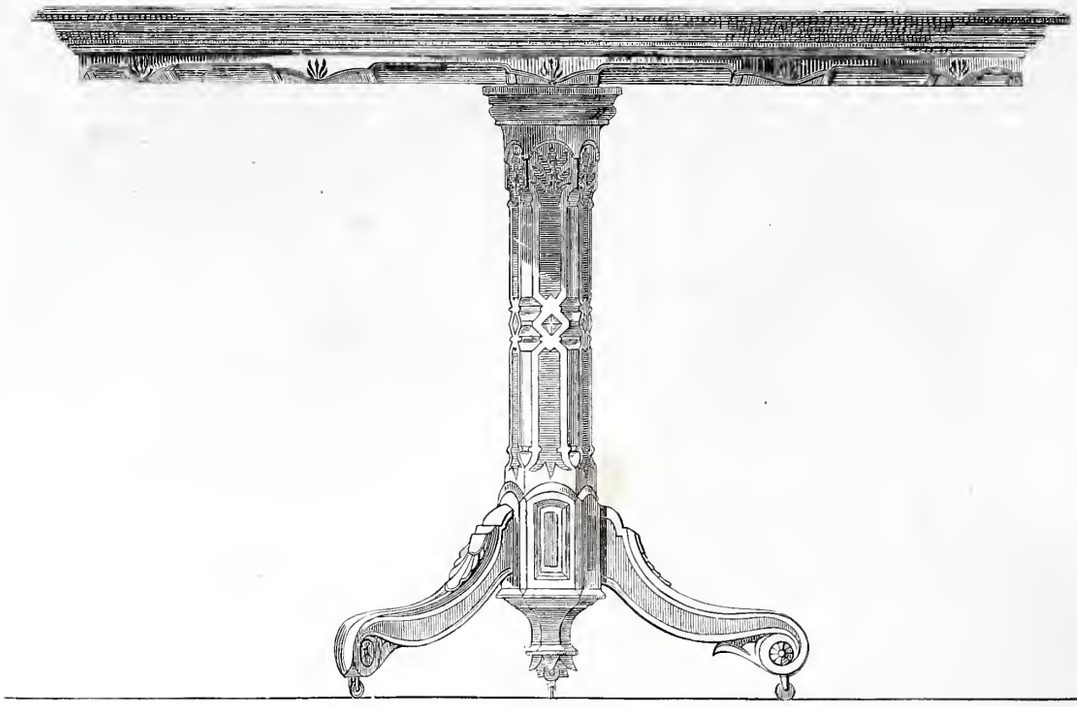


No. 10.

No. 10. Richly decorated Iron Gutter, of the New Opera House, Paris. M. Ch. Garnier, Archt.



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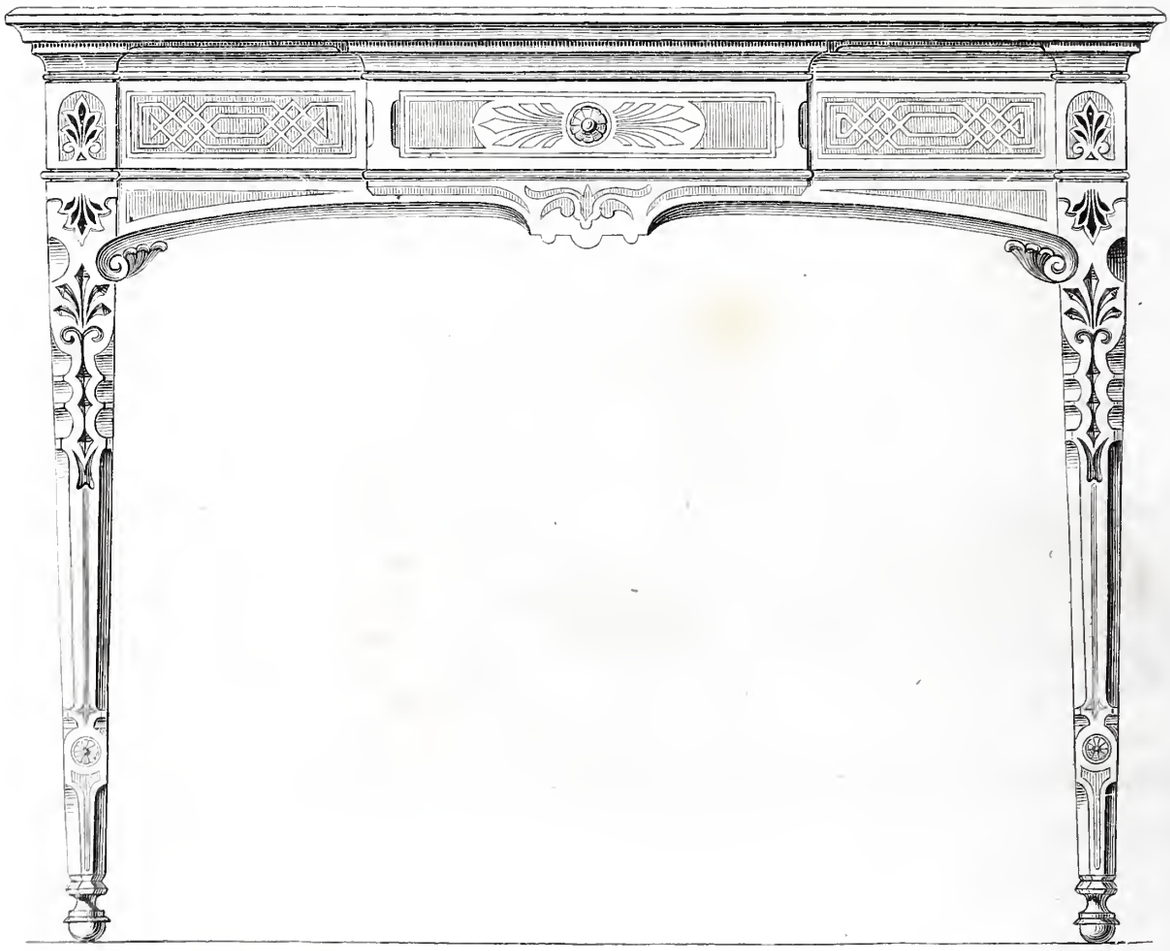


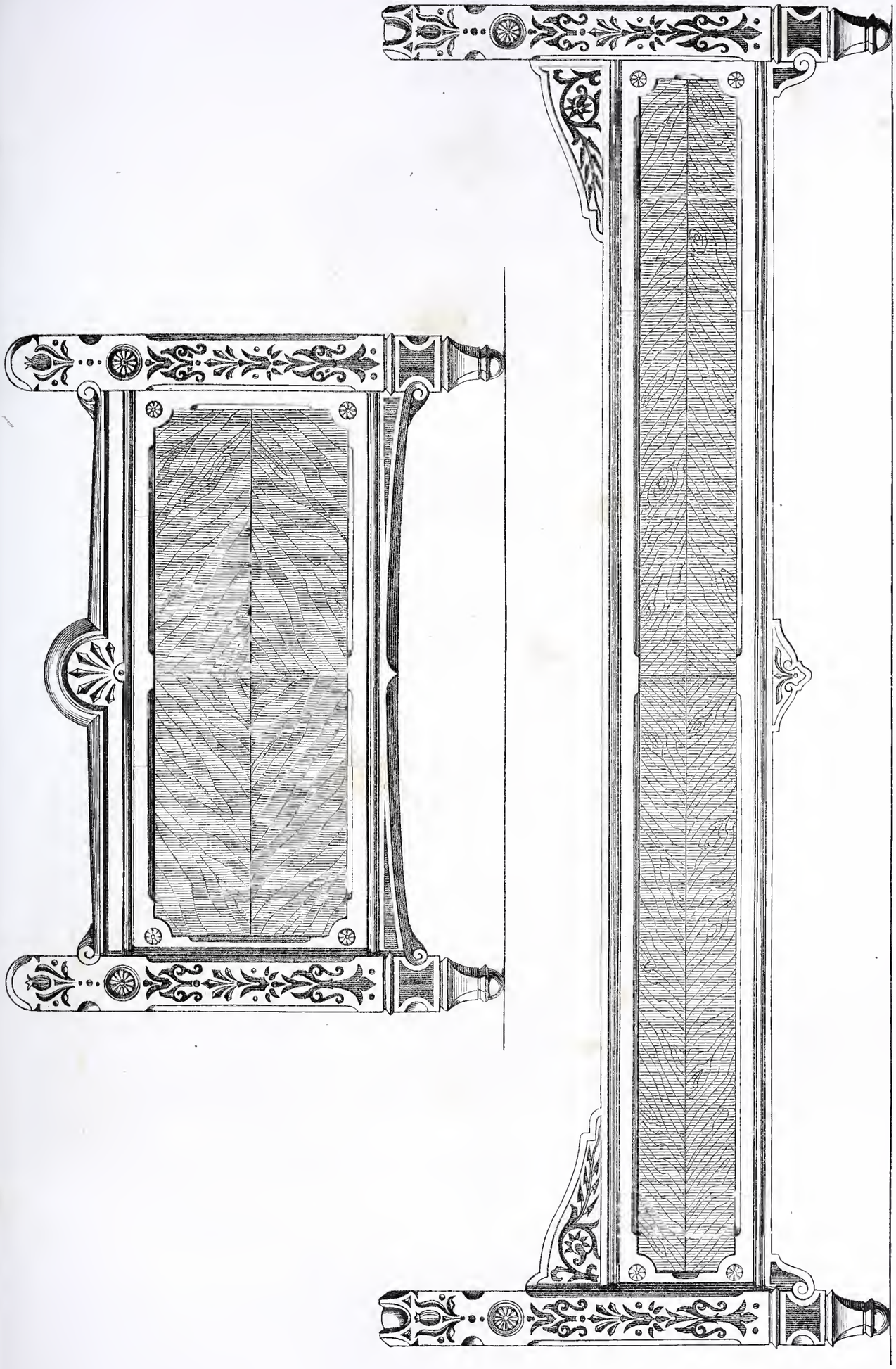
No. 12.

Nos. 11—14. Bed-room Furniture. (See Part 14.) Mr. Rehlender, Archt.

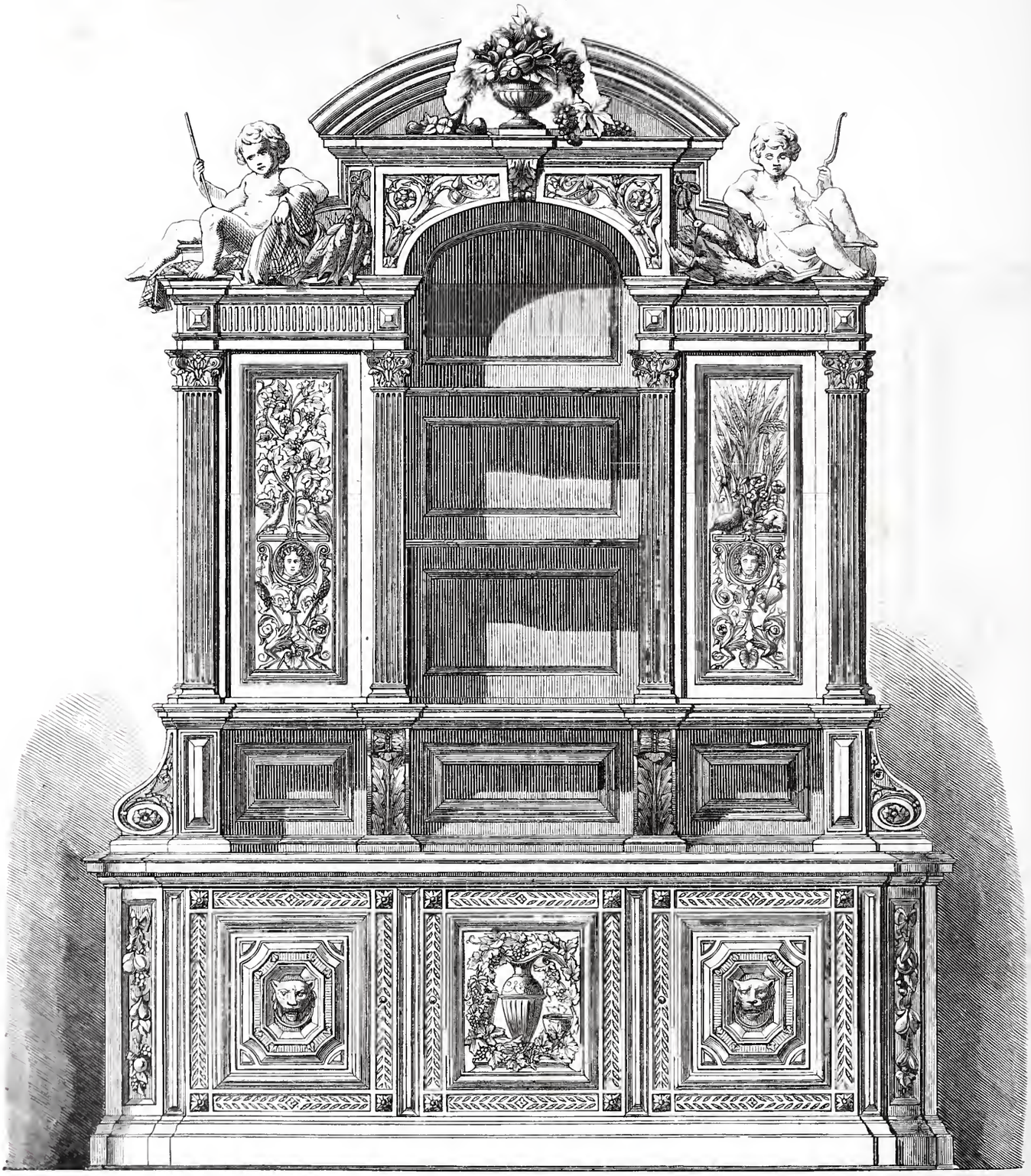
No. 11. Round Table, belonging to the set of Nos. 25 and 26, Part 14. For details see No. 1 of Supplement.

No. 12. Square Table, to that of Nos. 23 and 24, Part 14. For details see Nos. 5 and 6 of Supplement.

Nos. 13 and 14. Front and Side Elevation of Bedstead. For details see Nos. 2—4 of Supplement. For style of treatment of this furniture see also Part 14.



Nos. 13 and 14.



No. 15.

No. 15. Richly carved Side-board.

No. 16.

No. 16. Bronze Chandelier; manufactured by Mr. Hollenbach, Metal-worker and Gasfitter, Vienna, from the design of Mr. H. Riewel, Archt.

No. 17.

No. 17. Vase, from the Pompeian house of Prince Napoleon, Paris, — M. Alfred Normand, Archt.

Ground-color of Vase, white; dark shaded parts representing red, lighter shading green, scrolls yellow; knob and pinian-apple of lid white, bead green, ovalo on red borders of vase, yellow; red beadrolls on white ground.

No. 18.

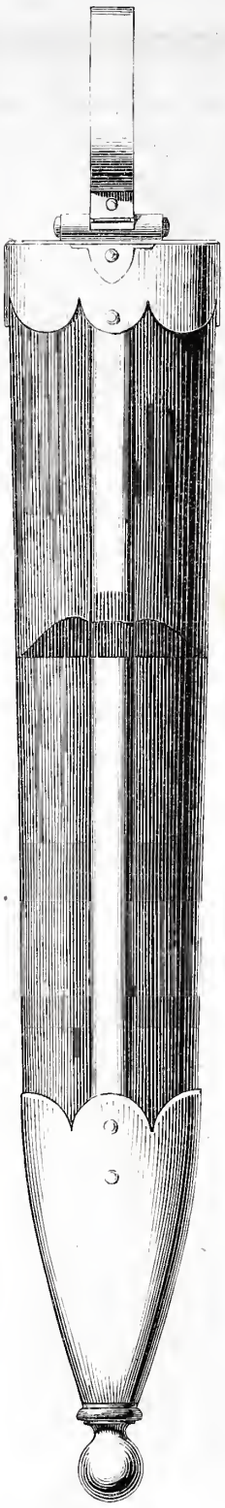
No. 18. Carpet Pattern. — Mr. C. Berger, Archt., London.

Ground left in blank representing white; light shading vermillion; black ground standing for brown-red; flowers and bordering outlines yellow.

From the Paris Exhibition.

No. 19.

No. 24.



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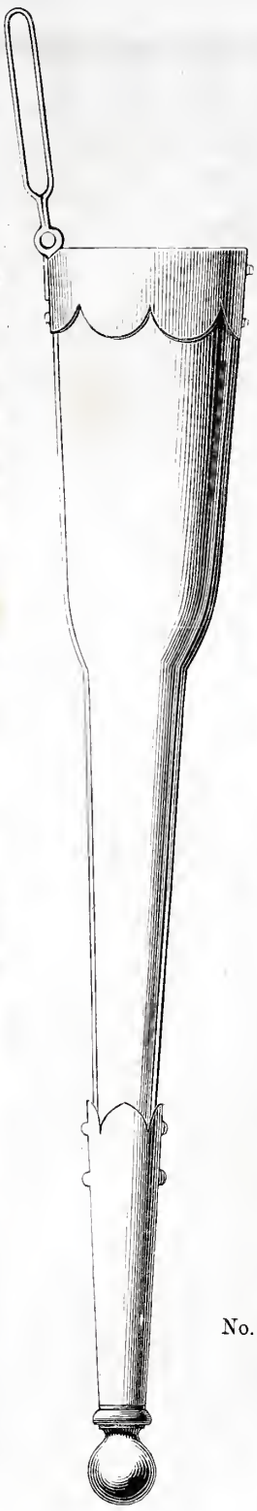

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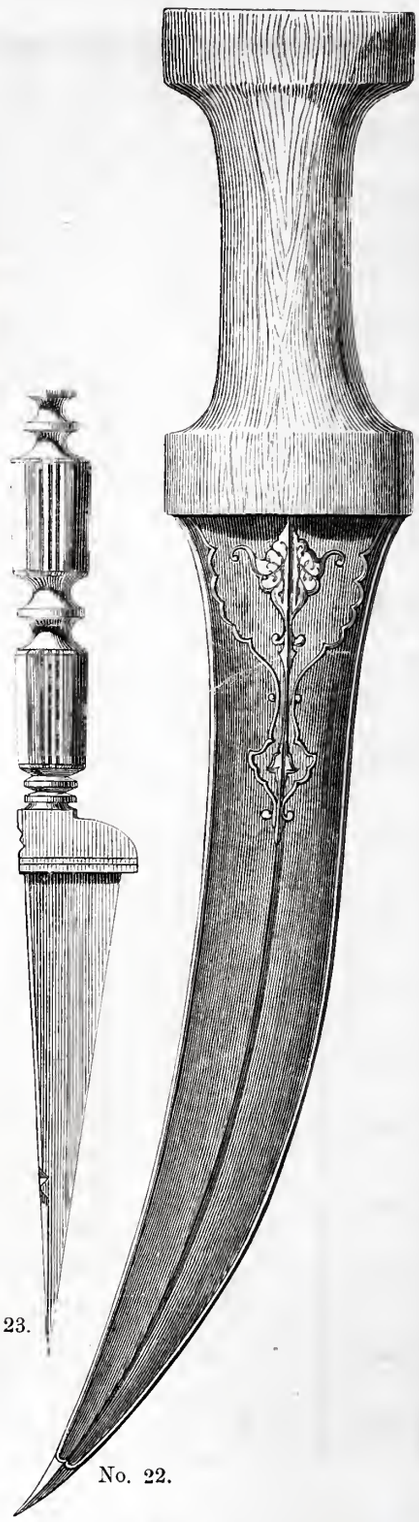

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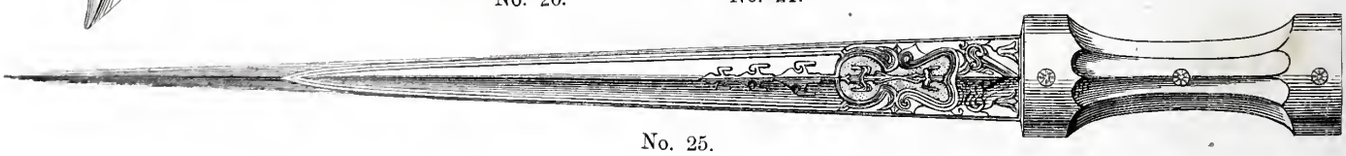

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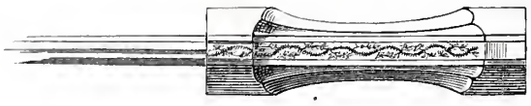


No. 26.

Nos. 19—27. From drawings of M. Bénard, Archt.

Nos. 19, 20, 21 and 27. Knife from the Norwegian Section, with front and side view of scabbard.

Wooden hilt of knife richly carved; No. 27 evolution of carving, showing the typical character of the ornament of that country, as illustrated by other specimens in the Exhibition.

No. 22. Persian Knife, rather more than 1/2 real size.

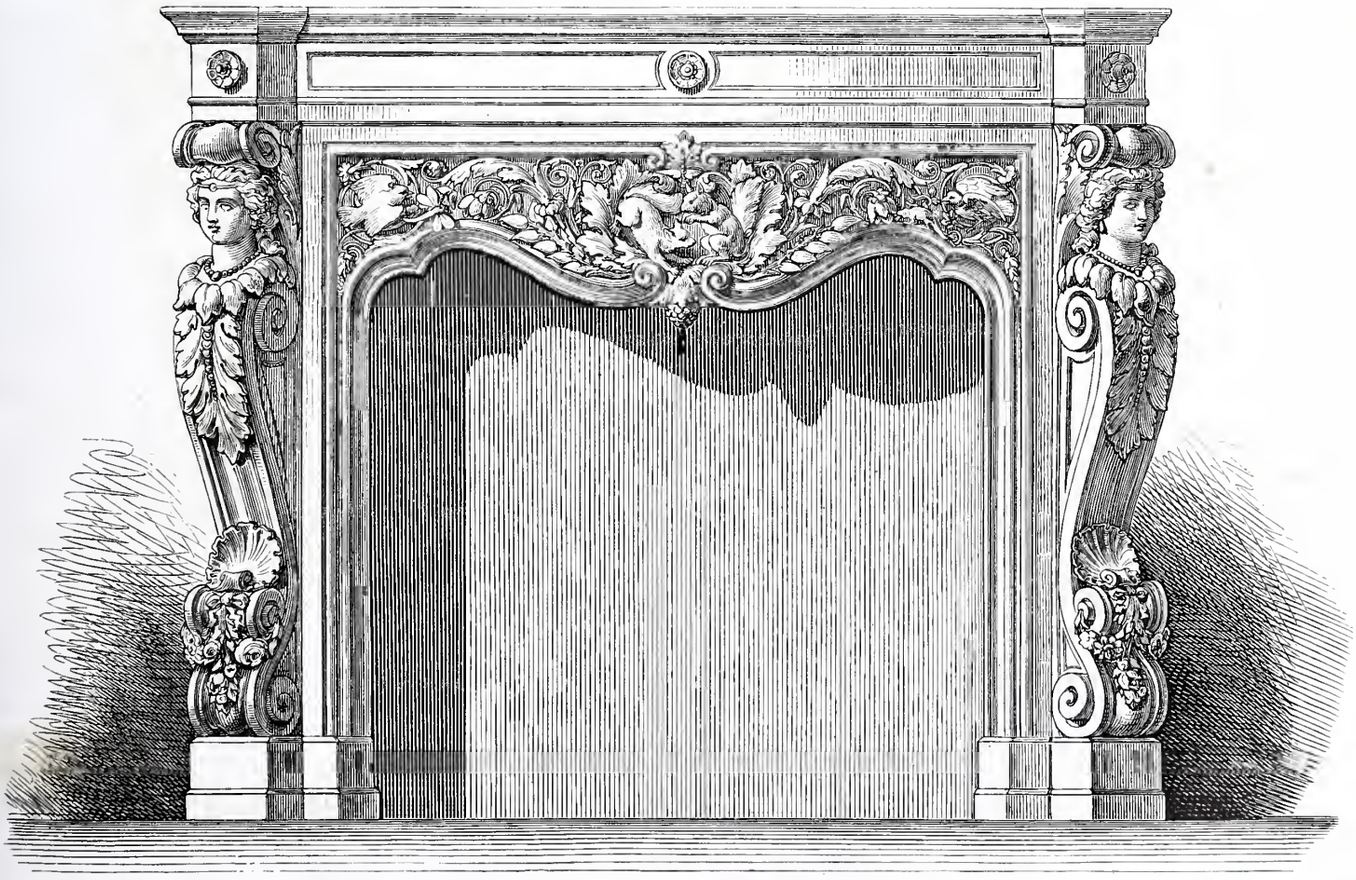
No. 27.

Blade damascened steel, with gold inlay, and ivory hilt. Mounting of knife, scabbard and ring, polished iron.

Nos. 23 and 24. Small Spanish Poinard; scabbard serving as paper-knife; ivory hilt with brass hollow mouldings.

Nos. 25 and 26. Turkish Poinard; 1/3 full size.

Blade damascened, with gilt edges and ornament on punched ground.



No. 28.

No. 28. Marble Chimney-piece. Mr. A. Jungermann, Sculptor, Berlin.

Supplement.

Nos. 7—9. Borders of a Memorial Tablet in San Zaccaria, Venice (1470). Incised ornament filled in with lead.

VARIOUS.

A Durable Covering for Staircases.

The wear of staircases is often a very serious matter. Whether of wood or stone, with much usage, they soon go. If of stone, the roundness of the edge soon wears away, and the people miscalculate and stumble. If of wood, they are much sooner worn down. To save them, we resort to many devices. We cover them with lead, which, soon wearing into holes, leaves ragged edges, which catch ladies' dresses and make similar ragged edges. Or we put a thick bar of brass along them, which sometime catch the heel of a man's boot and send him headlong down stairs. The facts being so, a really lasting and serviceable protection to staircases is a desideratum. Such a covering, M. Cazean says he has found in thin plates of aluminium bronze. For some time, it seems, the ascent of the column in the Place Vendôme has been interdicted to the public because of the wearing away of the stairs. It is for these that M. Cazean proposes his covering, and if what he says is true, that the experiment has been made in a factory (it must have been a very busy one) where plates of common bronze on the stairs 1/2 in. thick were worn out in six weeks, while plates of aluminium bronze 1/8 in. thick remain just the same as when new, after eleven months of service, it is an invention which must command notice. Aluminium bronze is not too expensive if it will bear this amount of usage; and we recommend the authorities of the Metropolitan Railway to give it a trial in place of the objectionable bars of brass to which we have alluded. Our readers will remember that aluminium bronze is merely copper with from 8 to 10 per cent. of aluminium. *The Mechanics' Magazine.*

Archæological Notes.

A curious discovery, kept secret for fourteen years, has just come to light at Ravenna. The workmen, engaged in digging a canal near the present railroad station, in 1854, found a skeleton with a breastplate of fine gold buried face downward. The precious piece of armour, which weighed six pounds, was broken up and the pieces sold secretly to jewellers. Two larger pieces, which appear to have been the shoulder bands, and are covered with chasing and enamel, have been given up by a jeweller at Faenza, but the remainders are probably lost. It is known that Theodoric buried the body of Odoacer, after his murder at Ravenna, face downward; and the Italian antiquarians suppose that this golden harness is really that of the first king of Italy.

The excavations which are being carried on in Rome are fruitful of interesting results. The last announcement is that the Emporium has been found intact, being merely inclosed by barbarous constructions, which are being cleared away. Another report is that a large number of blocks of rare marbles have been found, including seven blocks of violet paonazetto, which is not now to be obtained at any cost; the remainder consists of Porta Somta, Africano, Milesio and Parian, the blocks being as remarkable for their size, as for their extraordinary beauty.

Bleaching of Wood-pulp for Paper.

M. Orioli, a french chemist, says, in the *Revue hebdomadaire de Chémie*, that the chloride of lime, if the dose is the least in excess, has a tendency to give a yellow tinge to the pulp; that all energetic acids, without exception, tend to give a reddish colour to the paper when exposed for a long time to the effects of the sun, or of moisture, and that the least trace of iron is sufficient in a very short time to blacken the pulp. He says he has succeeded in avoiding all these inconviences by the use of the following mixture. For a hundred-weight of wood-pulp, he employs 400 grammes (four-fifths of a pound) of oxalic acid, which has the double advantage of bleaching the colouring matter already oxidised, and of neutralising the alkaline principales which favour such oxidation; he adds to the oxalic acid one pound, or a little more, of sulphate of alumina, entirely deprived of iron. The principal agent in this mode of bleaching is the oxalic acid, the power of which over vegetable colouring matters is well-known; the alum has no bleaching power of its own, but it forms with the colouring matter of the wood an almost colourless lake, which has the effect of increasing the brilliancy of the pulp. *Journal of the Society of Arts.*

Transparent Colors.

There are several colors that are natural transparents; others that may be made so by mixture.

The transparent colors are Terre de Sienna, Asphaltum, Dragon's Blood, Carmine, Rose Pink, Chemical Brown, all the Lakes, Gamboge, and all the Gums.

Semi-transparent — Umber, Vandyke Brown, Chrome Red, Emerald Green, Brunswick Green, Ultramarine, Indigo, Verdigris.

Remarks. — These colors should be ground very fine and spread on evenly.

If to be shown with a strong light two coats may be given; but if a subdued light one coat is better.

Transparent colors are purer if elutriated; that is, ground fine in water; let it settle, pour off the top part of the settlings, mix that up with more water, let it settle, and take the top half of that, which will be free from all sand and grit. If the pure part of the pigment, however, should be the heaviest, discard the top and use the bottom of the sediment. Usually, however, the purest coloring part settles upon the top.

Any of these colors will work more evenly and be more transparent, if a small quantity of water be mixed while grinding.

Turpentine makes transparent colors work crumbly. Bleached boiled oil, or white varnish, is the best vehicle for flowing evenly. Raw oil does very well, only that transparent colors are always difficult to dry. *The Painter's Manual.*

Metallic Ceilings.

A system of metallic ceilings, which consists in the application to the joisting of very thin stamped metal in ornamental embossed panels, has lately been invented. These stamped panels are fitted for every kind of decoration in color, and if inserted as plain surfaces may be used as the ground for every description of cartoon painting, combining with lightness and durability, artistic and ornamental effect.

Electrotype Ornaments.

The galleries of Greek and Roman sculpture in the Louvre have been largely increased and embellished of late, and among the ornaments introduced are a number of bas-reliefs, round bosses, and allegorical figures, covered with a coating of metal, the work of M. Cossinus. The effect of the electrotype bronzes is extremely rich, while the cost is trivial compared with real bronzes.

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Ornamental Iron-work.*

By Mr. Jacob Falke.

In the course of the seventeenth century other decorative treatments of Iron-work supplanted etching which gradually fell into disuse. The design was sometimes engraved into the metal; but especially thin, pierced ornamental plates were frequently employed for the enrichment of the flat surface; of iron in the first instance, they were afterwards of polished brass, when outward show and brilliancy instead of simple beauty in art were aimed at. These decorative devices were not relief-work but merely surface ornament; raised leaves and flowers are however found, although embossed from very thin sheets of malleable iron, thereby deficient in point of solidity.

During the development of smith-work, the craft of the armourer had produced works of art of the highest excellence and perfection. There were genuine artists, many of great renown, who during the sixteenth century devoted themselves to the manufacture of armour in Milan, Augsburg and many other places. The real problem was indeed to make the cuirass shot-proof; but these heavy pieces being only worn in war, rich noblemen and princes had splendid suits of lighter make for state occasions, wrought with great art, and showing most elegant and beautiful enrichment, their other arms and pieces of ornament being of corresponding richness.

There were, technically speaking, three entirely different styles of decorative treatment. First the etching above mentioned, the development of which may be attributed partly to the etched plates of Albert Dürer. Suits of armour with ornamental and figured etching dating from his time, are to be met with which remind us of his style and treatment. The devices are of exquisite beauty and elegance in detail, but viewed as a whole from a certain distance they make too little outward show, being less gorgeous in appearance, for which reason they used to be enhanced with rich gold ornaments. Etchings were frequently applied also to sword-blades and to shields, as long as these were in use.

The second, more difficult mode of ornamentation consisted of hammered or *repoussé* and chased work. In the beginning merely channels or flutings were punched into the steel, producing by their polish the brilliant reflection of light and shade. But as early as in the first half of the sixteenth century the most delicate raised work, such as only the highest refinement of art of the period could produce, was resorted to for the enrichment of the armour and harness of knight and steed, covering them with reliefs of the greatest beauty and perfection of workmanship. Historical and mythological subjects, ornaments with masks, fantastic or real figures, and similar types or features of the Renaissance were hammered and chased in steel and iron, sometimes with as much perfection as if modelled in wax. Our art-collections exhibit many specimens of that high perfection of workmanship for which the productions of that epoch, especially Augsburg work, are justly renowned. Partial gilding was often combined with this otherwise solid and truly genuine style of art-workmanship; but it must be considered an aberration, and an exaggerated gorgeousness for these suits of armour to be entirely

* See p. 225 *ante*.

gilt. In this case the chasing is also generally less perfect, and it is not much to be regretted if the brilliant polish of the gold has to atone for the deficiency in artistic value.

A third style of ornamentation, decidedly of Eastern origin, and suggested by the arms captured in the Turkish wars, or acquired by commercial intercourse with the East, was introduced by the armourers and swordsmiths; such specimens being, even at that date, in great favor amongst soldiers and art-collectors. It consisted in the damascening (*tausio*) i. e., incrusting of one metal on another, generally gold or silver on iron or steel. The precious metal, according to the drawn or engraved pattern, hammered into the heated, common metal, was often applied in such thin sheets as to appear like mere gilding. Still such a supposition would be very erroneous, only genuine, solid gold or silver being used for such decorative treatment, for which reason their brilliancy and rich effect have remained untarnished, unless injured by rust, causing it to scale off.

The ornaments also thereby in use are Oriental motives, borrowed, with the *technique* itself, from their armour. They show the charming arabesque-work of ancient Eastern art, the graceful play of interlaced bands and lines, interspersed with leaves and flowers, which, being adopted by the armourer, soon found their way to the workshop of the gold-smith and the studio of the illuminator; or they adorned book-covers and mounts, as well as the productions of many an other craft. Even in modern decoration we can trace their influence although often devoid of their original character. The boss or umbo of the shield, the helmet, the plates of the armour, the hilt-knob and blade of sword and poniard, especially on their under parts, were profusely covered with these elegant arabesques in charming arrangement, they being generally applied wherever a suitable surface for their display presented itself. If some difference can be discerned in the ornamentation of the productions of Eastern and Western origin, it is that oriental motives (see fig. 4) present a close design, with the general effect and repose produced by a quiet pattern, while the European work is marked by a bolder design of the main features on a broad ground, both which characteristics may be seen combined in the Hungarian state armours.

In the second half of the sixteenth century those three styles of decorative treatment were sometimes combined; damascening, especially, was united with *repoussé* work, chased figures, representing e. g., knights in armour, being suitably enriched with incrusted gold ornaments. They were also adopted for objects of art for domestic use, chests and caskets being covered with them. We would mention here as a typical specimen a large iron desk, now in the possession of the Vienna treasury, the work of the Italian artist Joseph de Vici, engaged in the service of the Emperor Maximilian II. of Austria and dated 1569. The model and precursor of our modern strongboxes, it is a unique specimen of its kind, enriched with ornament of unsurpassed beauty and elegance. The iron case forms an architecturally designed framework for niches and compartments with chased iron figures, damascened gold and silver ornament filling the intermediate spaces and especially the interior.

A fourth style of armourer's work, which originated about the same time, must not be passed over. We refer to the chiselled knobs and basket-hilts of swords and poniards, many excellent specimens of which are still extant. The technical difficulties and the amount of trouble incurred by this style, caused it to be restricted to the above objects, or at best it was used for the enrichment of costly guns, the locks of which were, however, generally adorned with engraved figures and ornaments, sometimes also with damascening.

All these modes of decoration were in use at the beginning of the seventeenth century, which still furnished some excellent works, although not quite equal to the splendid specimens of the sixteenth, from which time the decline of the art must be dated. Real armour had already become rather useless in the course of the first half of the seventeenth century, and art ceasing to attach any value to it, the craft itself, being found to be unremunerative, as a natural consequence began to decline. It might not seem to follow of necessity that the manufacture of other arms, principally swords and fire arms, would have to suffer too; still this was the case, for they decidedly deteriorated in an artistic sense, and thus the three principal styles of decorative treatment fell out of fashion while gilding and blue damascening usurped their place.

In the East only, artistic Iron-work preserved its influence in all directions, although somewhat defective in design and execution. It is very difficult to find modern Eastern arms, which can compete, with regard to art and the purity and beauty of damascening, with the old weapons which we frequently meet with. It is true the Japanese make chiselled steel-hilts with little figures and ornaments in relief, wrought with extraordinary skill but baroque in taste; but Indians must certainly be ranked highest, not only for their gold-damascened shields, helmets, sword-hilts and blades, but also for all sorts of iron vases, caskets and utensils with inlaid goldornament, the fine goldfillets showing delicate relief. Notwithstanding the profusion of goldlines, the design being always quiet and clear, these works are most charming in effect with their ever-varying golden hue inimitable by any gilding.

The Indians are equally successful now with silver ornamentation, the style of work being quite the same as that employed for the enrichment of the Merovingian tombs, above mentioned. It consists of delicate sheets of silver, incrusted on iron according to the design, and applied to all sorts of objects, i. e., arms, and utensils,

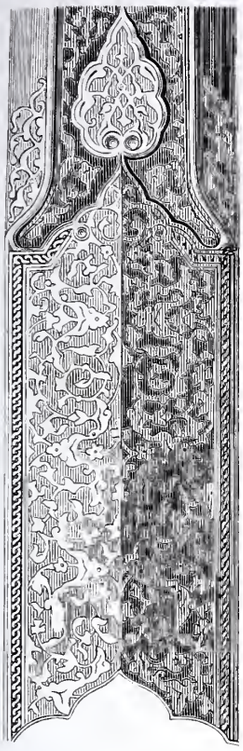


Fig. 4.

Damascened gold arabesques on the blade of an Indian poniard.

Sixteenth century.

Fig. 5.

Iron Bottle with incrusted silver ornament. Indian Biddra-work.

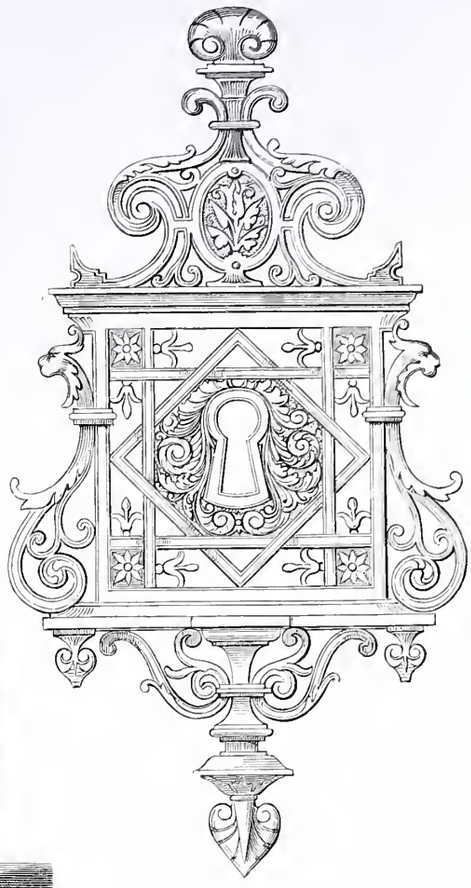


Fig. 6.

Chiselled steel-lock. Recent work; M. Huby, Paris.

especially the bulbed vessels for hookahs with mounts made of a black alloy of iron-like appearance; the effect of the silver incrustation on black ground being very noble and elegant (see fig. 5). The Persians, also, produce similar works and the same decorative treatment may be observed on Caucasian arms and utensils. A modification of this is the silver-ornamented iron-work of Tula, now almost forgotten, but formerly well-known by the inlaid snuffboxes imported in great numbers into Western Europe. All these productions are of Eastern origin and it is but recently that the Russians have begun to change their charming and peculiarly characteristic arabesques into Rococo scroll-work and other European motives.

Nothing can be more appropriate for our modern iron utensils than the Indian silver incrustation above referred to, instead of the common-place decoration, mostly painting, of our strongboxes, caskets, desks and similiar objects used in well-to-do households. But smaller and finer Iron-work of our time does not seem inclined to introduce damascening; an exception in this respect was seen in the Paris Exhibition in a series of objects manufactured by the firm Zuloaga in Madrid, suggested by the gold-damascened arms of the sixteenth century with their oriental motives, and which are well worthy of imitation.

Wrought Iron-work seems in return to be revived for more important objects, as gates, grilles, screens, fire-dogs, gas standards and brackets, chandeliers, etc., many English and French firms of renown having taken the subject in hand. The English productions although perhaps the most judicious, are frequently too ponderous; and the polychromal treatment seems rather strange at first sight. The French on the other hand, are somewhat deficient as to a true conventional rendering; the flowers and leaves are too thin and light, showing sometimes direct imitation of natural types, a treatment not at all in conformity with the material. The excel-

lent works of M. Huby in Paris, as displayed in the Paris Exhibition, are indeed exceptions, and from these we give the illustration of a chiselled steel-lock (fig. 6) of most perfect and elegant workmanship. Also in Germany, and principally in Berlin and Vienna the erection of monumental buildings and palaces has caused a revival of artistic wrought Iron-work. So we may hope and expect that at least this branch of the art is again progressing in the right way. Let but the more delicate work of the ancient chased and damascened arms revive once more, and with the continual intercourse of the different branches of Art-Industry the manufacture of fancy-articles may in many instances greatly profit by it, iron being often much better employed where leather or its substitutes are now inappropriately used.

Specimens of Ornamentation.

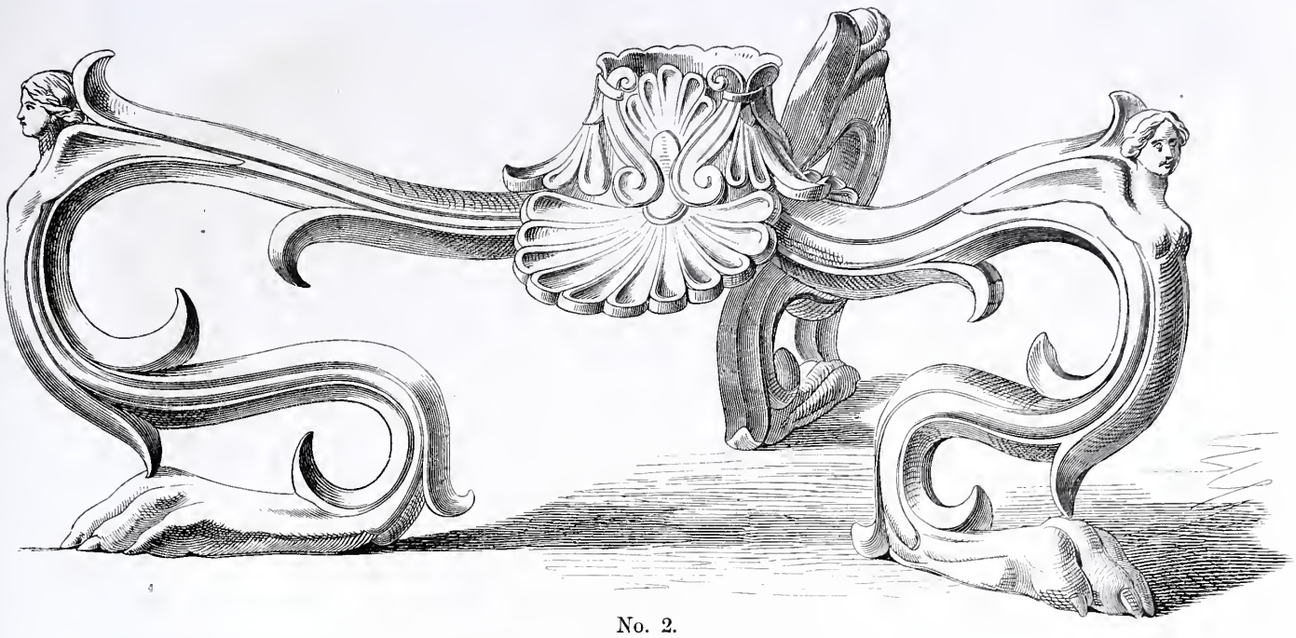
No. 1.

Nos. 1—5. Antique Silver Vessels, belonging to the treasure excavated at Hildesheim in 1868.

According to inscription, design and workmanship, of the time of Augustus, and supposed to belong to the silver plate of Varus, captured by Arminius.

No. 1. Roman Patera; real size.

The beautifully chased border ornament encircles a medallion, representing Minerva, sitting on a rock.



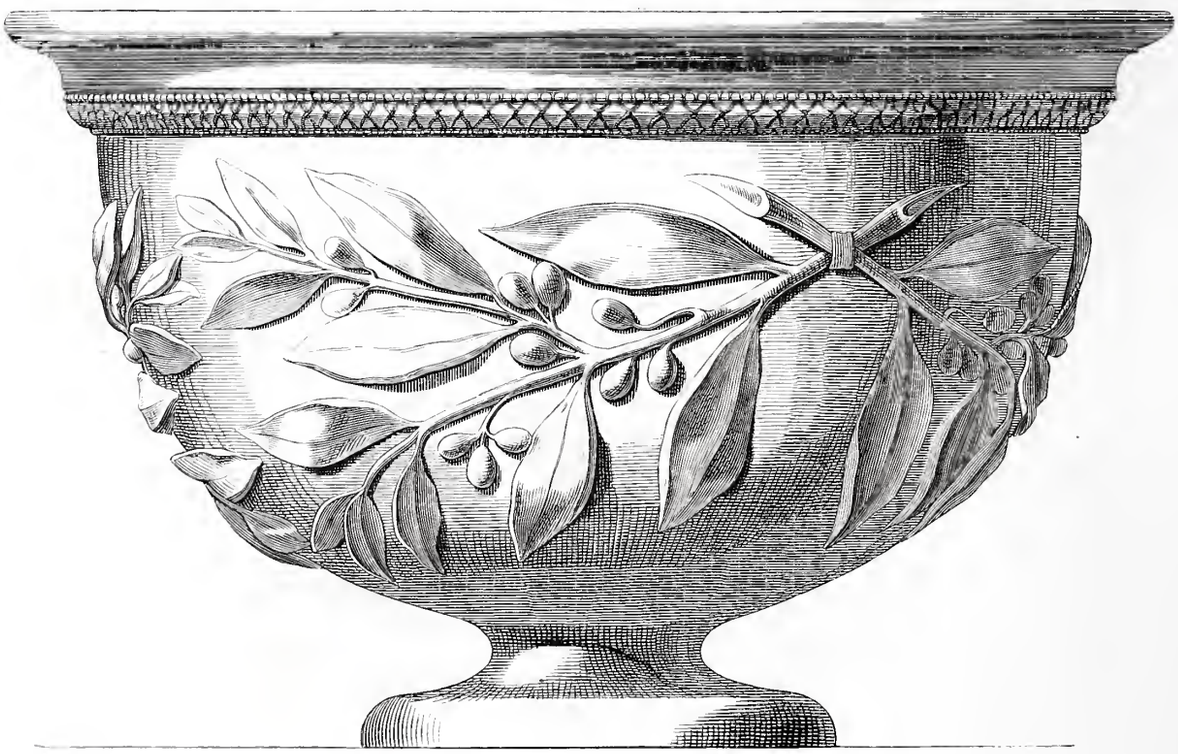
No. 2.

No. 3.

No. 2. Fragment of an Antique Silver Tripod.

No. 3. Crater with handles on low foot, the body decorated with flowing bands, and wreaths of fruit and flowers; real size.

No. 4.

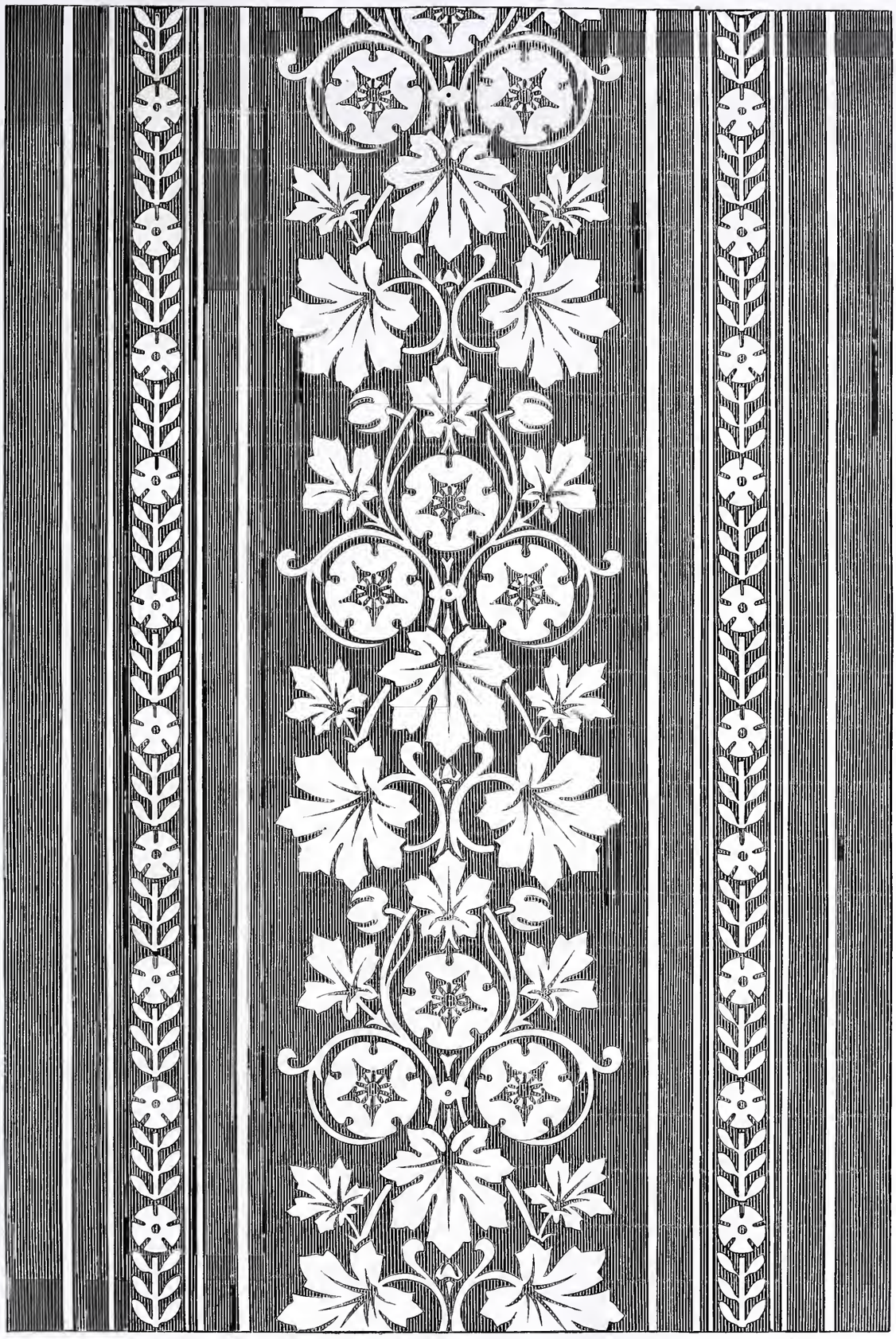


No. 5.

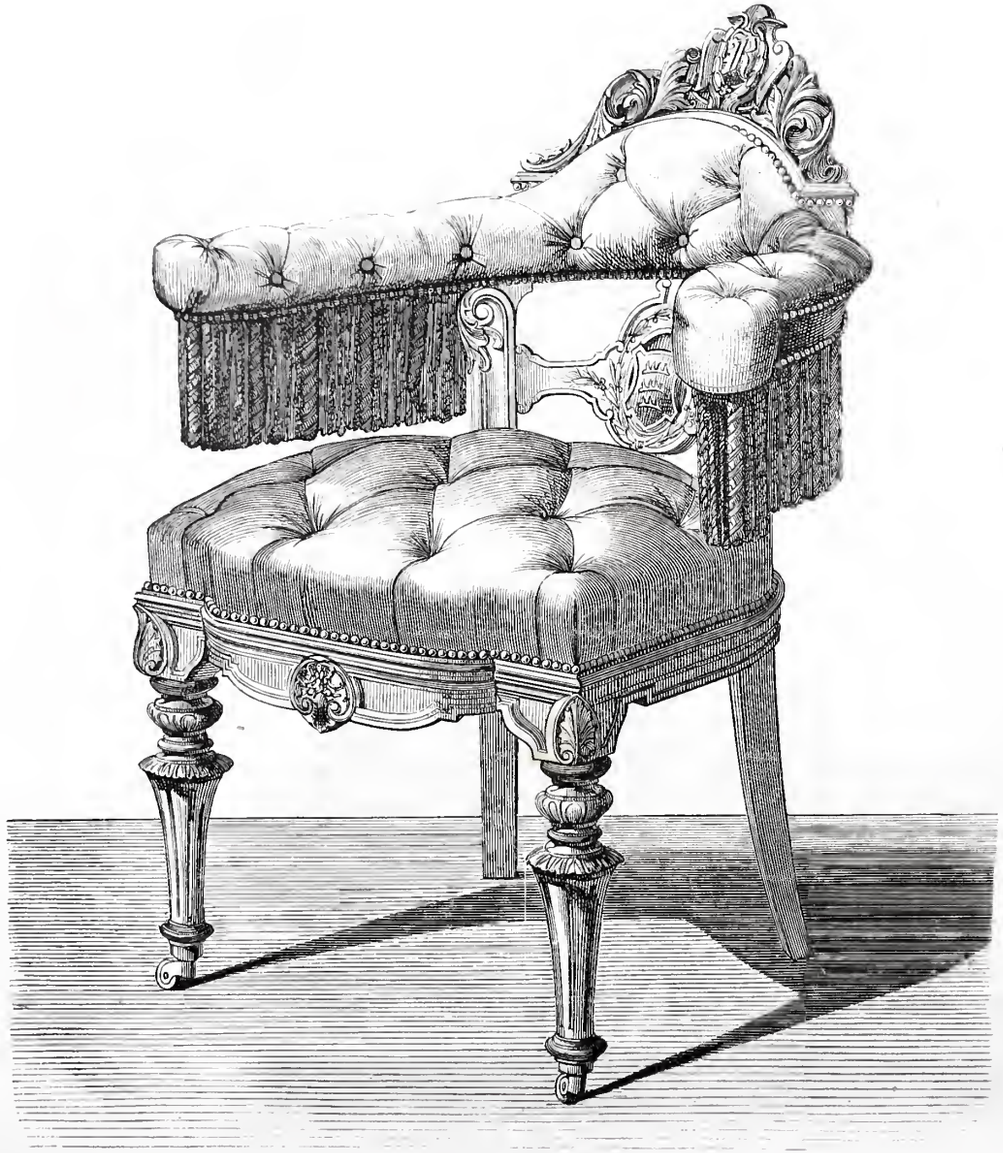
No. 4. Kyathos; or richly ornamented Antique Dipper; real size.

No. 5. Crater without handles. Real size.

The bulb enriched with interlaced laurel branches. The separation of foot and body, generally marked in Antique Craters, is not indicated here the outline showing one continual curve.



No. 6. Modern Pattern for Silk Hangings or Drapery; design white on red ground.



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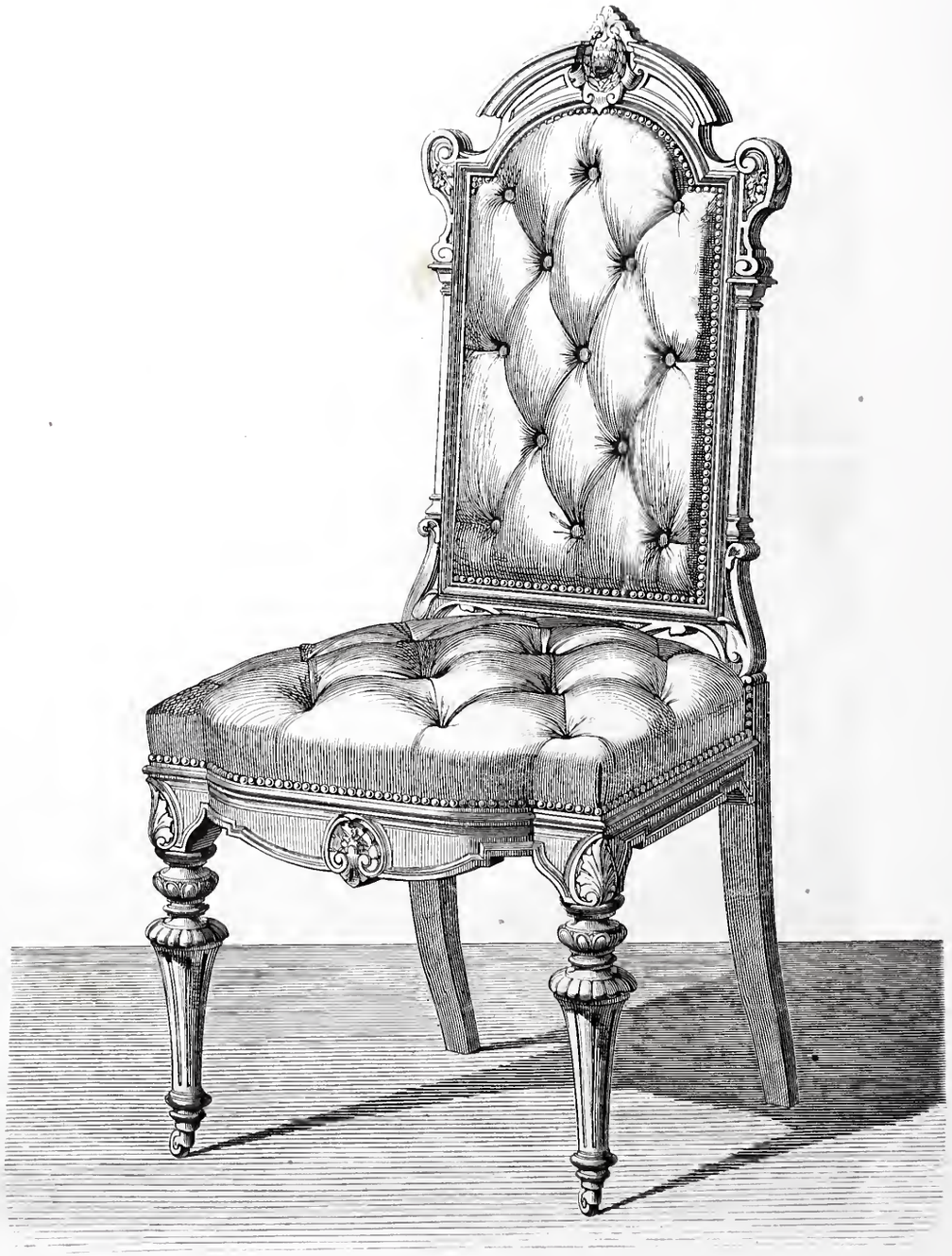
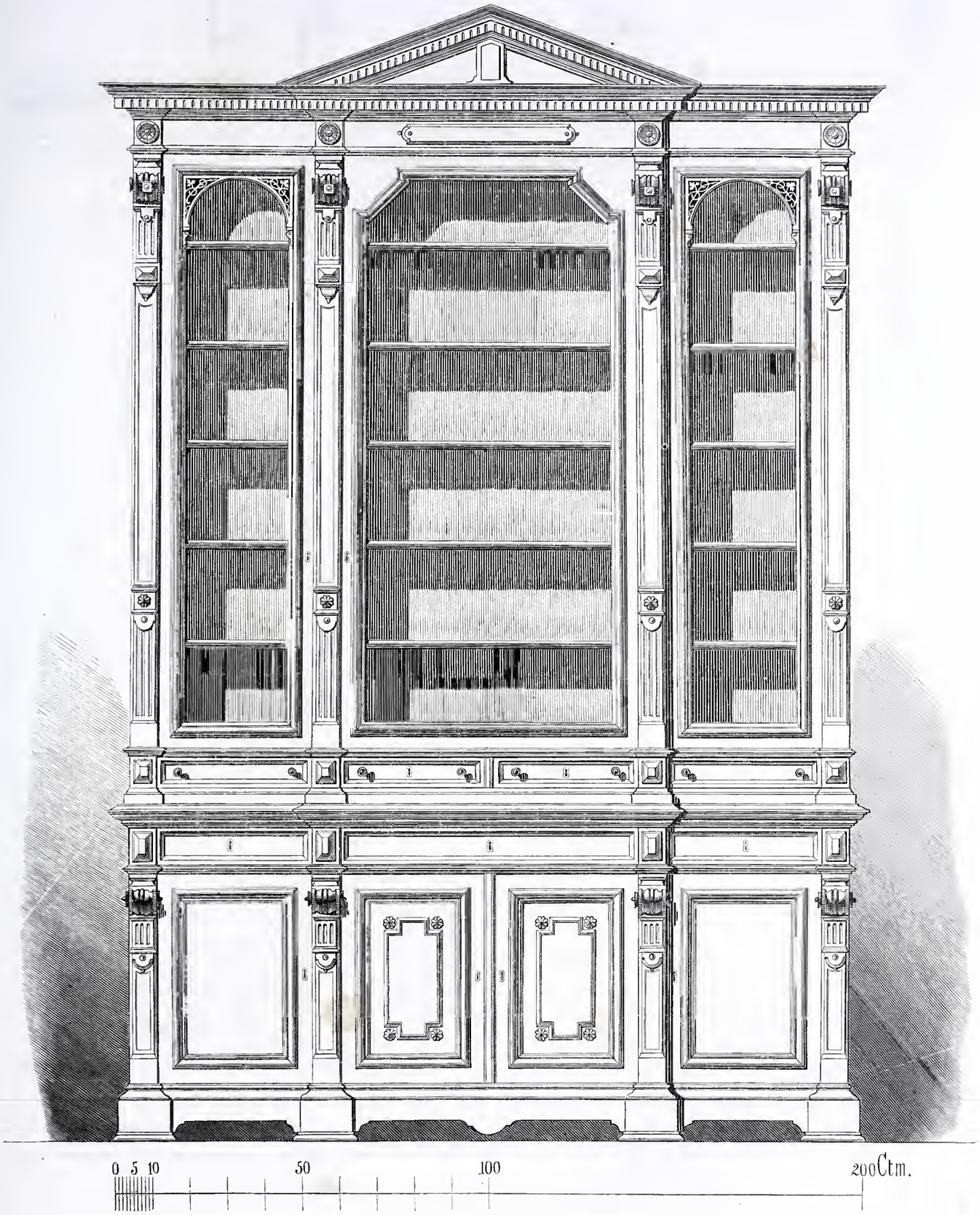


No. 8.

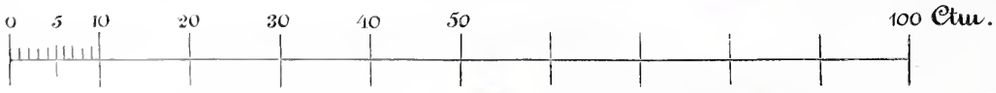
Nos. 7 and 8. Stuffed Chairs in black-stained Pear, with green Morocco coverings.

For details of No. 8 see Supplement No. 7.



No. 9. Book-case in Purple-wood.

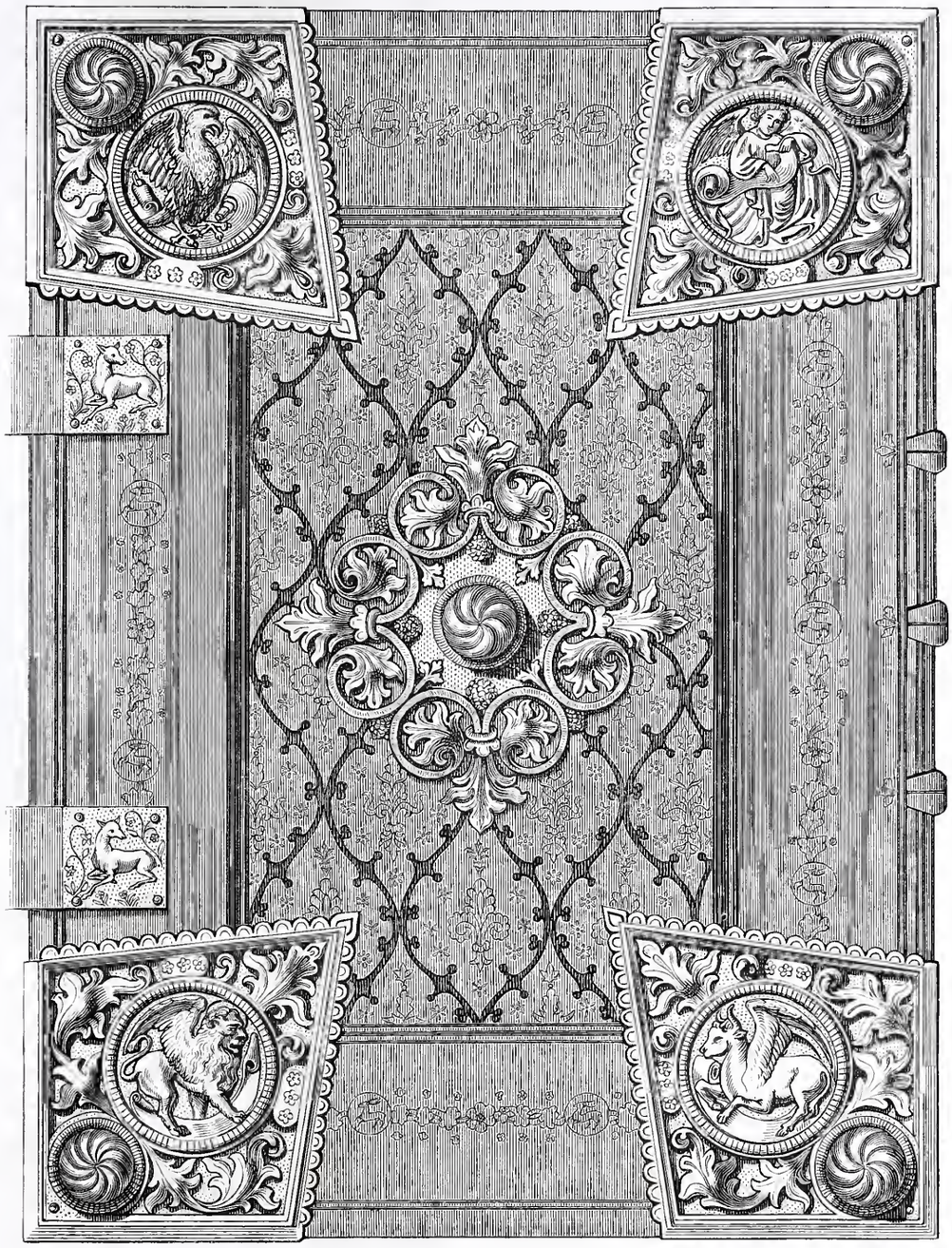
Of very good proportion and effect in general, although simple in design.



No. 10. No. 11.

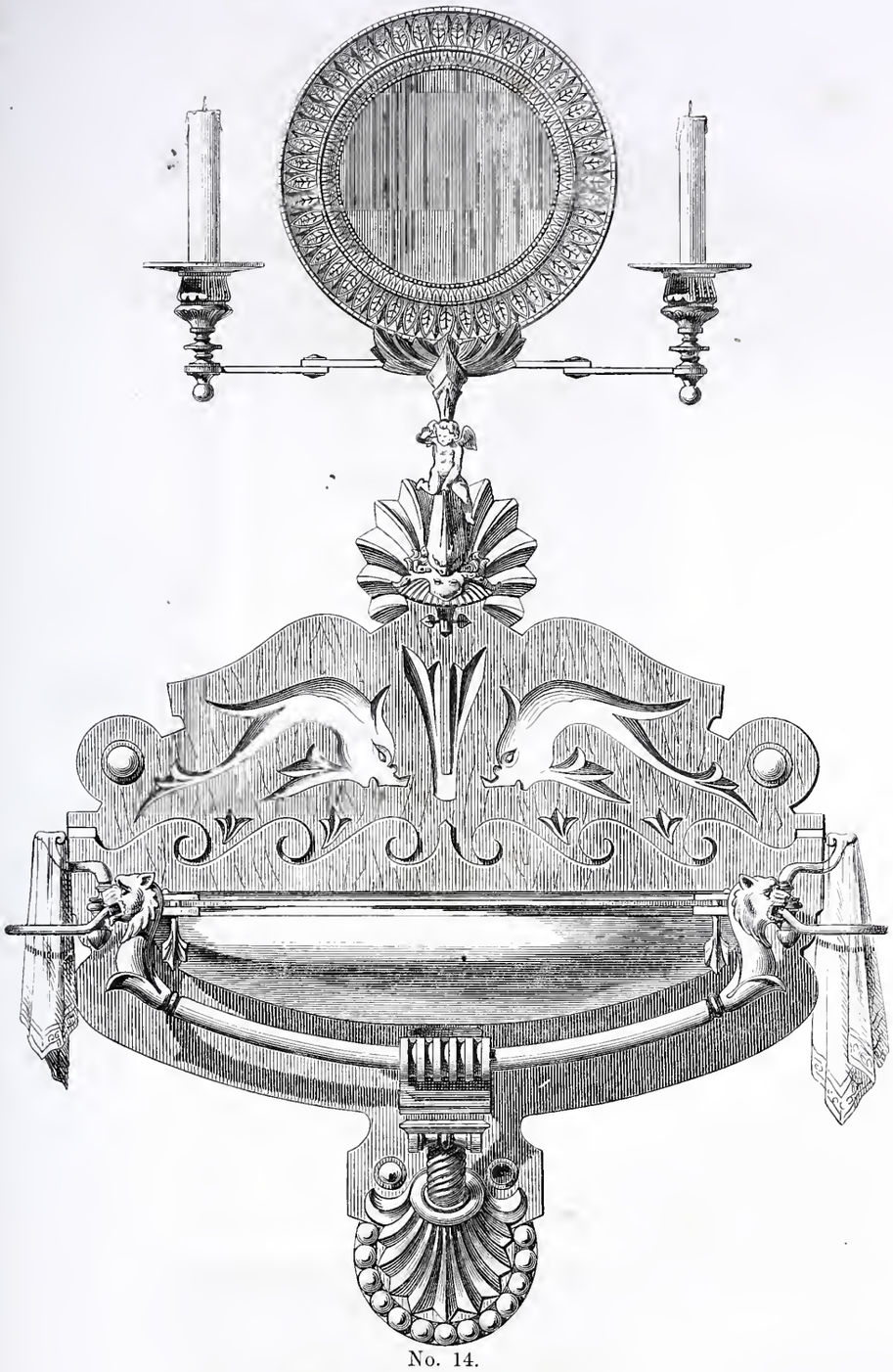
Nos. 10 and 11. Wardrobe; belonging to set of Bed-room Furniture represented in Part 14 and 15, and treated in the same manner. M. Rehlender, Archt.

For details see Nos. 5 and 6 of Supplement.

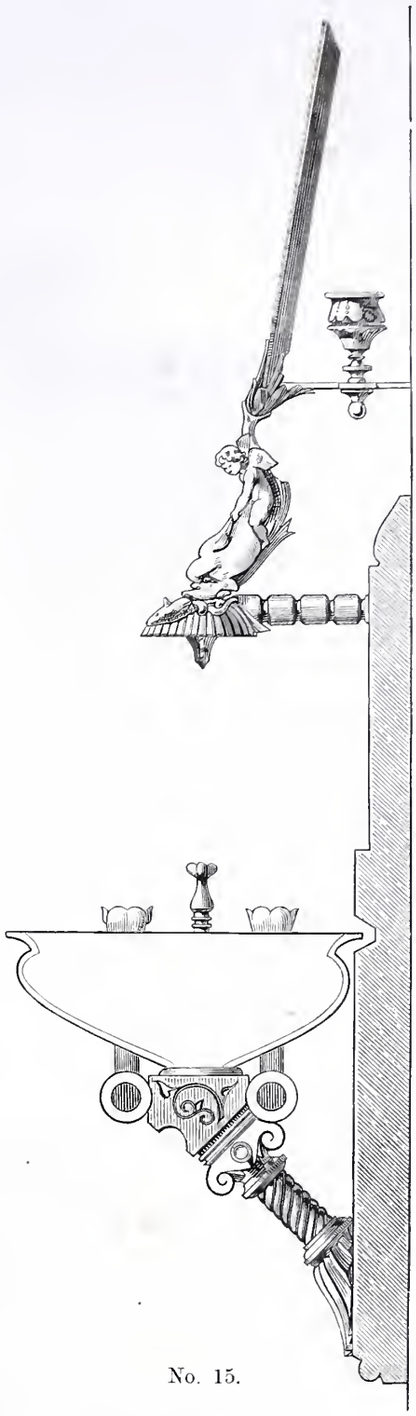


No. 12. Gothic Book-cover of a German Bible, printed in 1472. — Mr. Essenwein, Director of the Germanic Museum, Nuremberg.

No. 13. Modern Flower-Vase; with gilt brass mountings; real size.
M. P. Bénard, Archt., Paris.



No. 14.



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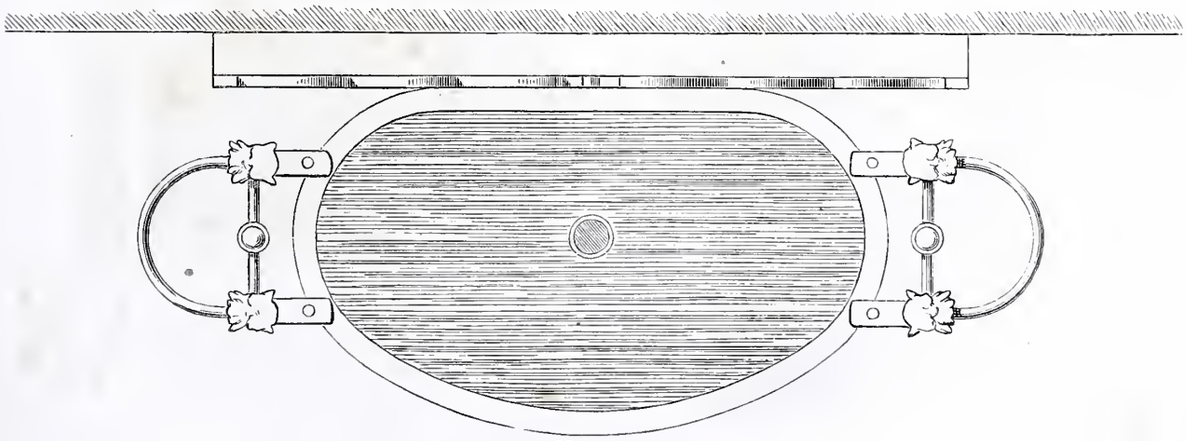
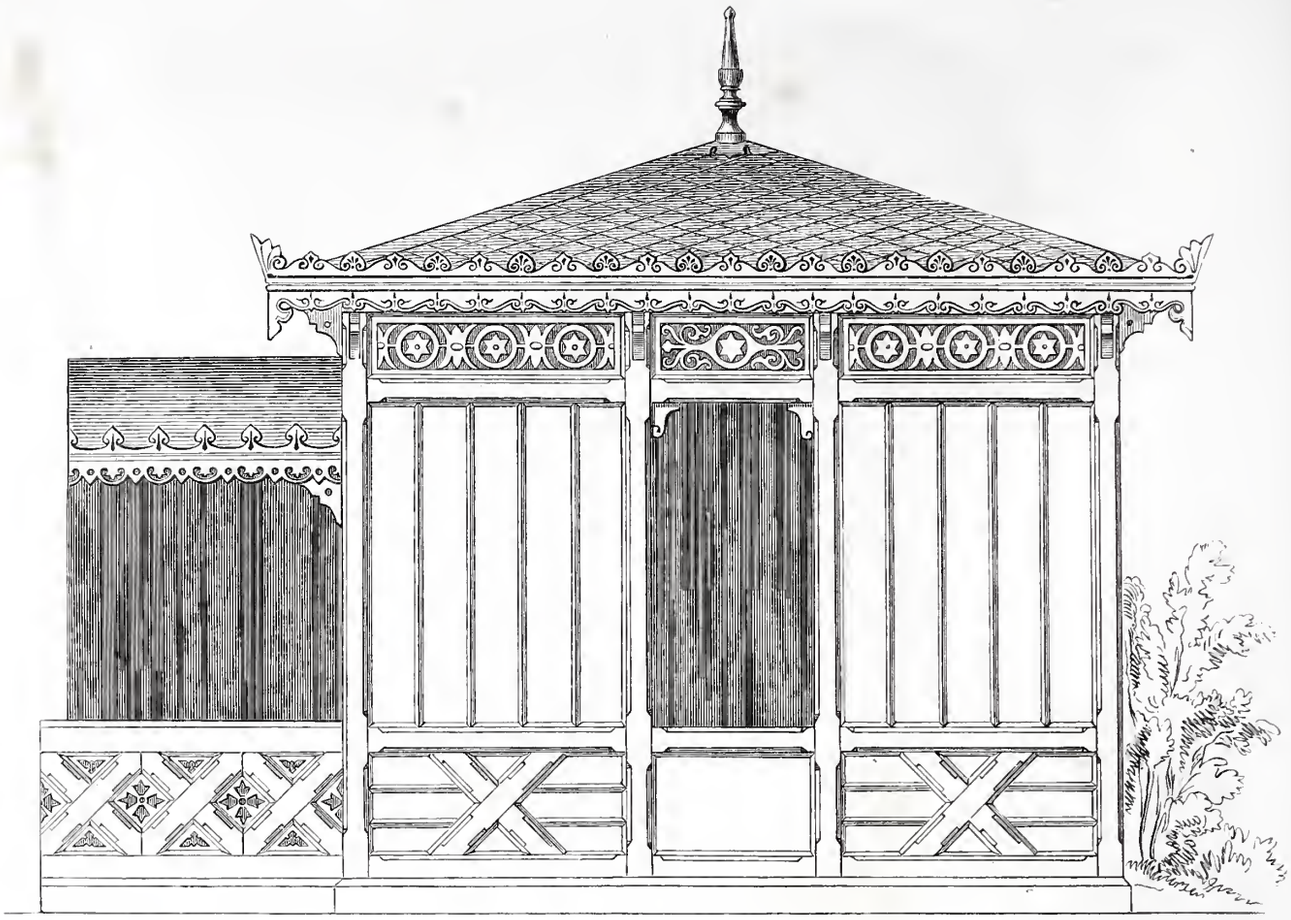


No. 16.

Nos. 14—16. Wash-hand Stand. Elevation, section and plan. — M. P. Bénard, Archt., Paris.
To be placed in a Lavatory or Cloak-room; the water-pipes as indicated in the designs; looking-glass between two lights surmounting the apparatus, (for which see No. 8 of Supplement), after an Antique mirror of Naples Museum; the marble slab at the back with incised ornament, painted bright-red; the bowl either porcelain or glass, everything else being bronze or other metal; rings on each side for hanging the towls.



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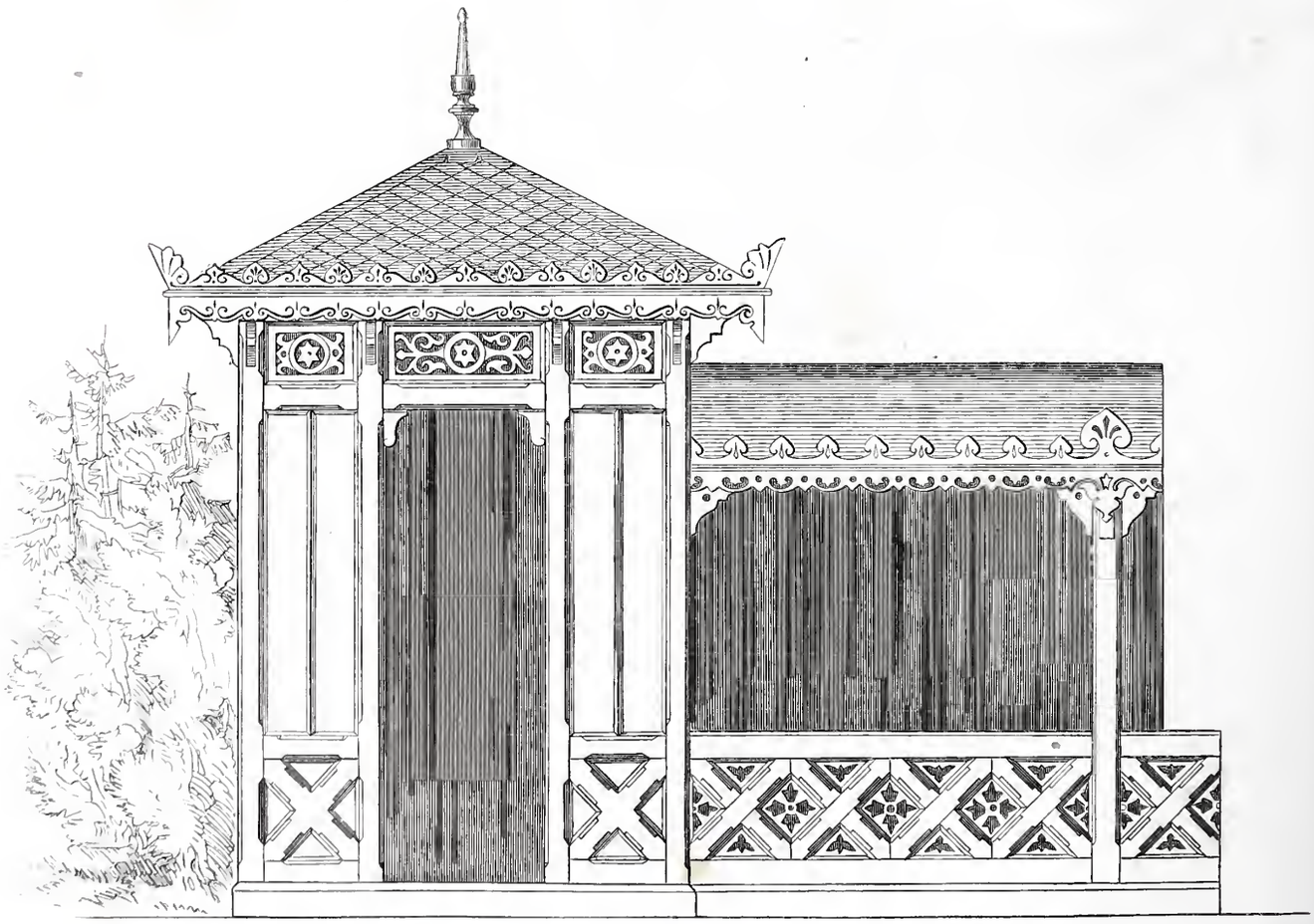
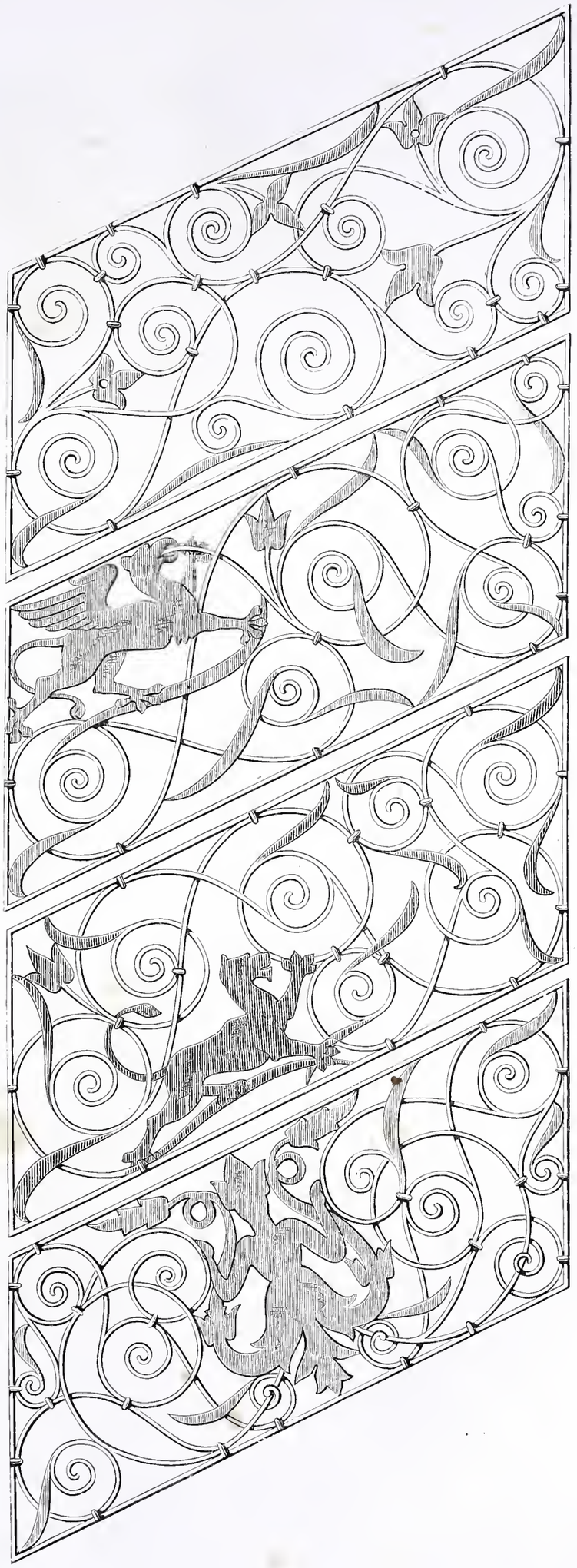


No. 18.

Nos. 17 and 18. Plans of Bowling-place. Scale $^{3}/_{100}$ full size. — Prof. W. Baumer.

No. 17 Building for the players; No. 18 that of the marker.

For ground-plan, section, and details see Nos. 1—4 of Supplement.



Nos. 19—22. Ornamental Iron-work of the sixteenth Century; Staircase Railing of the house *"zum alten Limpurg"*, at Frankfort; executed in round and flat-iron.
Scale, 1/12 full size.

VARIOUS.

Coloring of Marble and other Building Stones.

The coloring of marble has been practised a long time, but heretofore its results have not been altogether satisfactory. It has always been considered a difficult process, and the piece of marble to be colored required great care in its selection, that it might be free from spots or veins. Heat, to open the pores of the stone so as to prepare the stone to receive the colors, has been considered essential. It is true that many of the colors used would strike into the texture of marble while cold, but they would not sink to a desirable depth and the color remained on the surface.

The colors required and the vehicles employed to convey them to the stone have been numerous and various. Horses or dogs' urine with lime and potash, lye from wood ashes, alcohol, oily liquors, spirits of turpentine, and wine, are menstruums which have given some of the best results. The coloring matters used have been drawn from the animal, vegetable, and mineral kingdoms. Among them may be enumerated, extracts of saffron, buckthorn berries, alkanet root, dragons' blood, logwood, cochineal, gamboge, vermillion, yellow prussiate of potash etc., etc.

The art of marble staining has been generally kept a secret by those who have achieved the greatest success in it, and has proved a lucrative employment.

We have said that the results attained have not proved entirely satisfactory. Either the colors have proved fugitive or changeable after a time, to as to impair the effect of the combinations in which they were placed, or the stone would not bear polishing after the process, or was only a surface color, liable to wear out when used for floors, steps or in other situations where it was liable to attrition.

The superior advantages of a method which should impregnate the entire mass, as much in the interior as the exterior, and before polishing as well as after, are too obvious to be dwelt upon.

Such a process is claimed by Dr. S. A. Weisse, who has for a long time been experimenting in this field. We have not been put in possession of the details of this process, but we are able, from personal observation to testify as to the results obtained. The stones are colored through and through, not only marble but even granite having been subjected to the process with entire success. We are informed that the process is based upon the discovery of a new mordant, which has such an attraction for stone, that when a large block has only its base immersed in the solution, it will in a short time become permeated through the entire mass, increasing its specific gravity, and filling its pores so that the absorption of water is rendered very much less when subsequently exposed to the weather than previous to the operation. When it is remembered that the absorption of water, and its subsequent expansion by frost is one of the greatest causes of disintegration in our climate, it will at once be seen that an important collateral gain is obtained by the new process. Marbles colored by this process in the rough, afterward take a most beautiful polish, and specimens of dolomite polished previous to coloring have their polish hightened by it.

An effort has been made in this process to imitate the means by which the valuable colored building stones naturally receive their color. No attempt is made to produce a given pattern, or to imitate any particular effect. The general tone of the color is produced and the variations of the tints are determined by the structure of the stone itself. In this way the effects are all natural. We have before us a piece of marble picked up in a common marble yard, of a cheap variety one side polished the other rough, which has been colored by this process, and which the best judges invariably pronounce to be genuine Sienna marble.

The colors produced include the entire range of tints, and the veins and spots which develop themselves in marble, which previous to the operation is pure white, are surprising and beautiful. The cheapest grades of stone are thus rendered ornamental and desirable, and the combinations rendered possible by this discovery must arrest the attention of architects. We do not exaggerate when we say that some of the most excellent specimens of natural stones, celebrated for their beauty, seem dull in their colors when placed by the side of those prepared by this process. Their adaptation to church architecture, as well as the adornment of private dwellings, will be admitted by all those who inspect them. *Scientific American.*

New Paints.

At a recent meeting of the French Academy, M. Sace called attention to the fact that tungstate of baryta forms an excellent white paint, which has as good a tone and depth as white lead, and has the advantage above this of not getting blackened on exposure to the atmosphere. Zinc white, which was tried as a substitute for white lead, has failed, he said, through wanting body. M. Elie de Beaumont remarked that if this statement was confirmed, it would be of great importance; for we have no need to employ special mining operations for tungsten, as this metal is commonly found in company with tin.

Also in the United States much interest has been excited by the discovery of a mineral which is said to possess the most valuable qualities of white lead, while superior in many respects to the manufactured article. The mine in which it has been found is situate in North Carolina, and has been worked for many years as silver and lead mine. The vein, however, presents an unprecedented variety and association of minerals. Lead, silver, zinc, copper, gold, iron, and manganese are found in the workings, which are continually varying in character. The ore usually averages about 30 per cent. of lead. The powder manufactured from the ore, when mixed with oil, it is said, forms the most durable paint known, and a yacht upon which it has been tried has been sailing for the past summer whithout coppering of any kind. The works for manufactering this powder into white lead are situate at Bergen Point, New Jersey. There is something not clear, however, in what is said as to the nature of the paint: it is said to stand a fierce heat without change. *The Builder.*

A Cheap and Good Whitewash.

Dissolve 6 lb. of fine white pipe-clay in as much water as will make it as thick as paint; soak and dissolve $^1/_4$ lb. of good glue; add and mix well; then add $^1/_2$ lb. of fat or dripping of any kind, put on the fire and boil a few minutes, and use while hot. The fat being boiled with the pipe-clay forms a kind of insoluble soap, which, if used while hot defies all kinds of weather. It may be colored to suit the taste. *R.*

Artificial Ebony.

This substance, now used to a considerable extent, is said to be prepared by taking sixty parts of seaweed charcaol, obtained by treating the seaweed for two hours in dilute sulphuric acid, then drying and grinding it and adding to it ten parts of liquid glue, five parts of gutta-percha and two and a half parts of India-rubber the last two dissolved in naphtha; then adding ten parts of coal tar, five parts pulverised sulphur, two parts pulverised alum, and five parts of powdered rosin, and heating the mixture to about 300 degrees Fahrenheit. We thus obtain, after the mass has become cold, a material which, in color, hardness and capability of taking a polish, is equal in every respect to ebony, and much cheaper. *Scientific American.*

The Workshop

A Monthly Journal, devoted to Progress of the Useful Arts

EDITED BY

PROF. W. BAUMER, I. SCHNORR AND OTHERS.

VOL. I. No. 17.

STYLE IN ORNAMENTAL ART.

Style, and Unity of Style are the much used and abused watch-words of modern art-industry, and the different interpretations of them are almost as numerous as their advocates. Indeed we may openly confess that, as we have grown in years, our ideas on the subject have expanded, and the more occasion we have had to look into the art-creations of past ages, the more those ideas have changed.

The great question of Style, both in the Fine and Useful Arts touches everything and everybody; both the highly favored disciples of the Muses who, gifted with genius, devote themselves to their service, and the enlightened patron and amateur who, with an open eye and true understanding for beauty in art, take delight in the contemplation and study of its productions. Considering the general interest of the subject therefore, we may presume to discuss questions, perhaps apparently insignificant, but in reality of great range and importance, many a genius who overlooked them at first having afterwards found them a stumbling block.

We shall not preach the dogma of a New Style, but restrict ourselves to asserting that if there is only *one* art, there is only *one* style.

Every one of the different branches or periods of art has its own historical development, closely associated with the intellectual culture and genius of the age. Can it be otherwise with Style, the natural guide and support of Art, with which the latter can never dispense? Style is order and law in Art; it is in a more restricted sense the tangible form and structural embodiment in which the ever-changing character of the day is constantly reproducing its own image. Its development is the result of the art-creations of the period, all intimately connected, and dependant, as well on the means of construction and manufacture known at the time, as on the evervarying currents of the intellectual life and characteristic genius of the day.

It is only by cultivating the domain of form of any style or period in art, by possessing ourselves of its genius and characteristic features, and studying its means of construction or workmanship, and the material which is the medium for the form of expression, that we can have a clear conception of the style itself. Unfortunately many artists of the present time, laboring under the false impression that design is everything, study rather on the surface of the paper what is most expressively illustrated in museums and workshops. It is greatly to be regretted that, with all the restless activity of the day, and the rich inheritance of forms of past periods, there is a want of guiding genius in art. Reproduction and adaptation of the past, all strangely thrown together, meet us all around in our dwellings, shopwindows, workshops and exhibitions; and few only are the genuine creations of original genius and true art.

Examining the characteristic features and origin of some styles, we remark in the Grecian many Egyptian elements, the Greeks elaborating without scruple everything which answered their own idea and exquisite feeling for perfection of form. Gothic art also, even during the best period, is imbued with Romanesque and Oriental motives of ornament, which in their turn receive the impress of its spirit and character; the Renaissance especially lived by borrowing and adapting, but it has the great merit of having done so with such grace and originality as to elaborate it into a style of its own, of great breadth of design and harmony of detail, and thoroughly appropriate to the great power and tendencies of the epoch. We moderns, however, do some times just the reverse, indulging either in servile imitation or rejecting everything that may remind us of past periods in art. Thus we pass from one extreme to the other, being apt to lose sight of the movement of the day and the genius of the nineteenth century, from the fact that we ourselves are included in it. The laws and principles of

art are immutable, the sun which shone on Homer still shines upon us, but age and intellectual culture have advanced; our wants, technical powers, achievements, and climate are different. Is it right to build our churches in Gothique or Romanesque styles, living as we do in an era entirely devoid of the highly religious tendencies, and the spiritual current of that eminently monastic and chivalrous age which left its stamp on the mouldering relics of that time past all recall? Where, however, the conditions under which the style of a former period flourished remain the same we need not be afraid to revive and cultivate it.

To the dwelling, Gothic art, casting off some of its severity in exchange for comfort, has added something of the magnificence and luxury of Eastern life. Still more have we the task in our day, to construct and furnish dwelling-rooms, answering and anticipating the demands, both of modern comfort and art; for intellectual refinement and the perfection of our technical resources have implanted in us the taste for many things we cannot now spare, of which our predecessors had not the shadow of an idea. What more beautiful task than to provide a new future for the gigantic or original genius of mechanical power, and to guide the different branches of industry dependant on it into the realm of art? Why should we condemn ourselves to feeble reproductions or uncertain vacillating endeavours for originality? Let us look at the consequences of mere copying from Grecian and Roman models: The ornaments of some durable material, such as stone, clay and metal have become traditional, and by some scanty paintings here and there we may guess at the ornamentation of glass, patterns for weaving, etc. In order to keep strictly to the fragmentary specimens of the style of ornament, our advocates for the Antique copy the stone ornament on glass, textile fabrics, etc., not considering that, by dint of overtaxed precaution, they commit the greatest offence against the truest style of ornament, viz., that of absence of all adaptation to the object, material, and mode of manufacture. If the artist is thoroughly imbued with the character of Grecian art, let his inventive genius have free scope to make his design in conformity to the purpose, material, and structure of the object, without any servile reproduction of traditional forms. Much rather would we see now and then some less perfect but free and original creation of the artist, than a dead copy, quite out of place. Very differently and more beautifully does marble take shape under the strokes of the chisel than the freestone; wood too is carved differently from stone; and it is therefore entirely wrong to use for everything the same pattern-like forms of the few fragments still extant. Especially in the Useful Arts, adaptation to the purpose and material of the object is the first principle, and how often do we offend against it in the most outrageous manner! For the public in general nothing is Gothic which does not show the pointed arch, for they neither know its origin, nor can they often distinguish between the decline of Gothic Art and the time of its height; and everything that is round-arched they consider Romanesque in Style. For many a liberal application of the principles of ornamental art, revealed in Egyptian and Grecian works, i. e., that of idealising instead of copying the types of nature, does not yet exist. Restricting themselves within the narrow limits of Antiquity they renounce their own individuality, their own power of creation, and their right and liberty to give form and expression to the spirit of the epoch. This restriction which has some sense only for the art-student and pseudo-artist, living from plagiarism, leads to the very worst of reactions. Nothing can compensate for the deadening of our innate artistic life by servile copying of ancient periods in art, without considering the intellectual movement and character of the present time. The rich source of new combinations is not yet exhausted, the rythmical play of forms and lines shows still the same infinite variety as of old, and countless are the types of nature which spring up every year on fields and meadows. With the increasing prosperity of the people grows the demand for an artistic treatment of their daily surroundings. *One* style may reign here, i. e., the eternal law of beauty, and the great works of the old masters may be the connecting link to lead to a natural and free expression of our wants and feelings.

As long as we do not feel the power of original invention in Ornamental Art strong enough to throw away the leading strings of traditional forms, and to take the good where we find it and to assimilate it with our own ideas, so long let us hold fast to that system which must guide the artist until he is able himself to be its guide.

The Discovery of Antique Silver vessels in Hildesheim.

(For Illustrations see the present and former Nos.)

The discovery of Silver-Vessels in Hildesheim is of extraordinary interest for archæologists, partly because the spot where the objects have been found cannot be supposed to belong to Roman colonisation or traced to have any connexion with any established historical events; and partly because of the richness, purity and elegance which characterize the Table-service there discovered.

The most probable hypothesis is that we have here a part of the Silver Plate belonging to Varus, which, becoming the booty of Arminius in the Teutoburg forest, was sent by him into the interior and buried in the neighbourhood of Hildesheim. Should this be so, we see that we have to treat of creations belonging to the time of the first Roman empire.

Tho' it is true that Antique silver vessels have, at different times and in great quantities, been found in Pompeii, Rome, and Bernay in Normandy yet none of these have the same interest for us, since in none of these places has a service for the table, a rich relic of a Roman domestic establishment, been met with, by which we may form to ourselves an idea of the luxury and splendour of those times.

At the first sight of the collection we are struck with astonishment at the beauty of the forms in general, and at the immense size of some of the objects; e. g., a crater, or mixing vessel, and an amphora of respectively 13 and 14½ inches in height, dimensions very seldom to be seen in hammered work of silver.

On a closer inspection, we meet with several characters of ornamentation differing essentially from one another and in close connection with the forms of the vessels. This must lead us to conclude that the original possessor was a real connoisseur of Silver Plate and that he purchased manufacturies of the most diverse character, in order to contemplate with legitimate pride his rich collection which he knew so well how to estimate at its just value.

Among other objects is to be found the foot of a small Egyptian tripod, brought most probably from a Roman Asiatic Province. A drinking can, stiff and conical in shape, surrounded by alternate groups of animals and wreaths, has a great similarity to the earthen vessels of Ancient Grecian style. The workmanship is rough, but the animals are full of character, and remind us by their treatment of Assyrian and Egyptian representations. Closely allied to those earthen vessels are several drinking cups much resembling our own, or still more the French coffeecups, and either provided with a circular foot or standing on three claws. The mouldings are feebly marked, the ornaments engraved or stamped into sheets of silver and the incised parts filled in with green enamel. This kind of simple combination of colors with the brightness of the silver must have been of wonderful effect and is well worthy of imitation.

The wreaths and egg and dart ornaments have a certain stiff and pattern-like appearance in common with the painted Grecian representations of similar character.

There is also a saltcellar of great interest, recognised as such by the kindred treatment of an eggshell which contains in its frame 12 cups for eggs, similar to those of the saltcellar.

Nearly related to this highly conventionalized ornamentation, but somewhat lighter and more plastic in treatment, is a small dish intended apparently for vegetables, as it has the figure of a turnip in the corner, while on the top of the cover of another similar dish there is a flying duck to indicate its destination for a duckpie; a candelabra foot and a pot-stand must also be considered to belong to the same genus, on account of their sharply designed honey-suckle and scroll-work and the low relief of their modelling.

It is absolutely certain that these objects are of Grecian origin, or executed by Grecian artificers, since in form and ornamentation they present a complete contrast to another kind of cup and chalice which have more the appearance of vessels of state, and which must certainly be classed among Roman productions. To this class belong the Minerva plate, some chalices, a crater and three shallow vases from the bottoms of which start up in bold relief what seem to be the heads of the Deus lunus, of Cybele and of the infant Hercules slaying the serpents.

Till now we have only remarked, as ornamental motives, the simple ivy and laurel wreaths, the honey-suckle and scroll-work, the mouldings enriched by being cut into eggs and tongues, pearls, or other ornament, but in the last named vessels there enters all the richness of detail which we find so plentifully distributed over the mural paintings of Pompeii. Especially the acanthus leaves and scroll form the principal decorative features for the numerous interspersed flowers, shells, heads of men and animals, which with charming gracefulness fill up the corners, and cover the surface with ornament. In

many of these ornamental compositions are observed a remarkable knowledge of the true treatment of surface modelling, a just alternation of high or low relief, with a clear regard to its importance, and to the form of the vessel to which the ornamentation is applied.

The contours also of some of the smaller goblets have much affinity with larger Roman state-vessels in marble, e. g., one of the chalices reminds us especially of the celebrated vases with the four masks now in the Louvre. These masks are most skilfully executed in bold relief, and several heads and the whole figure of Minerva at the bottoms of the vessels seem to be almost detached from them and essentially alter the originally intended form. When such a round figure is found at the bottom of a vessel, its border appears like a frame in which the figure itself lies like a fruit, exhibiting the effect of the alto-relievo. If however there are applied to the exterior, or the bulbed part of a vessel, any forms not in harmony with the principal contour, this is a great fault and a proof of the decline of art. We may also discern this in the case of other ornaments, especially where an ill-applied naturalism mingles with the conventional treatment of the ornamentation.

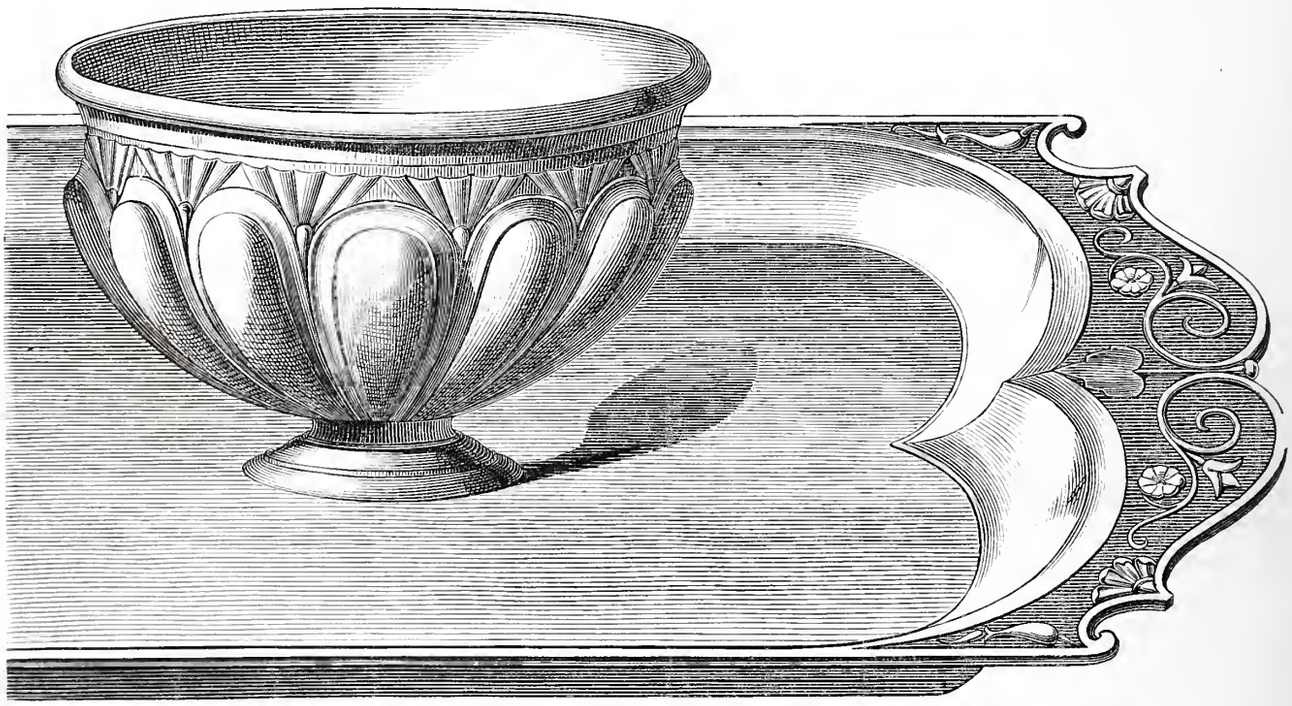
Both these faults are apparent in a small cup, so overloaded with lions' heads, vine-tendrils and other emblems that a noble simplicity of form is entirely sacrificed.

But indeed the skill of the artist in the treatment of silver in the time of Augustus is admirable. It is just here that the great difference is seen between wrought and cast metal. While, with the latter, an exact reproduction of the ornament according to the mould, is produced, the art-worker, with the former, has free scope for the display of his inventive genius or for the application of any improvement on the original. The monotony imposed by casting does not exist here, and in looking attentively on hammered work we discover always some new and charming feature or variety of the same original idea.

Most of the vessels were chiefly formed out of two sheets of silver, the intermediate space being filled with tin.

We have restricted ourselves to describing the most characteristic points of the ornamental treatment of this highly interesting discovery, and would refer for more ample information on the subject to the archæological reports of the Gœttingen Professors.

Specimens of Ornamentation.



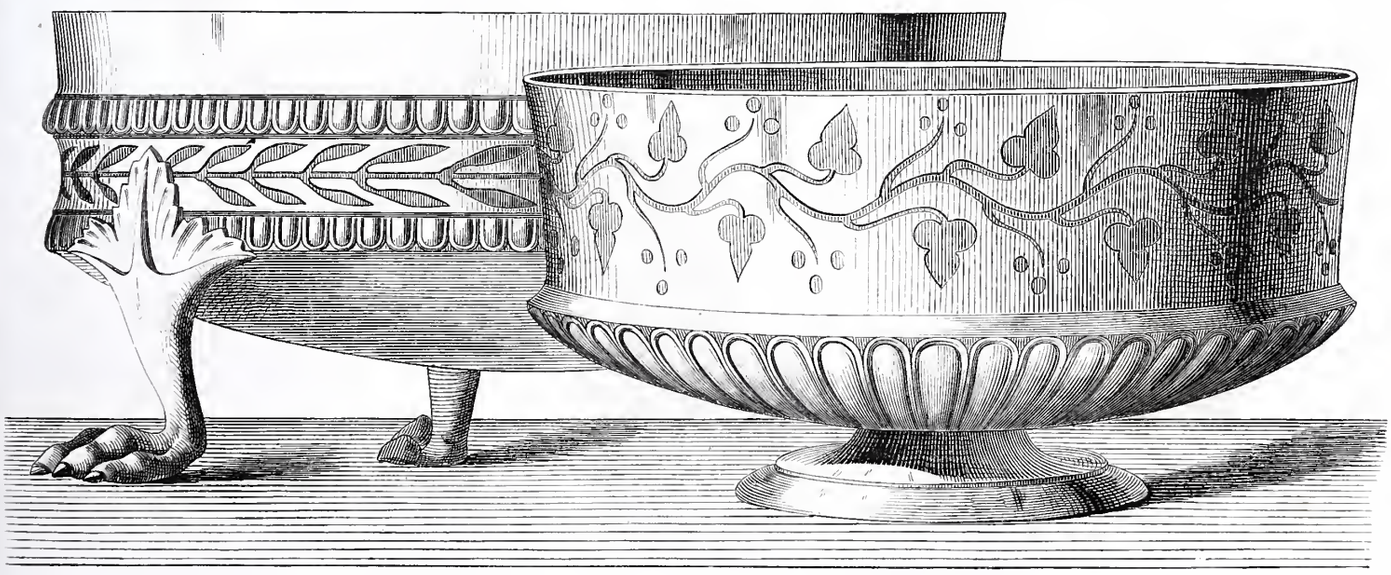
No. 1. No. 2.

Nos. 1—10. Antique Silver Vessels discovered in Hildesheim (see Part 16).

No. 1. Salt-Cellar, being a counterpart to an Eggstand of similar style.

No. 2. Vegetable-Dish.

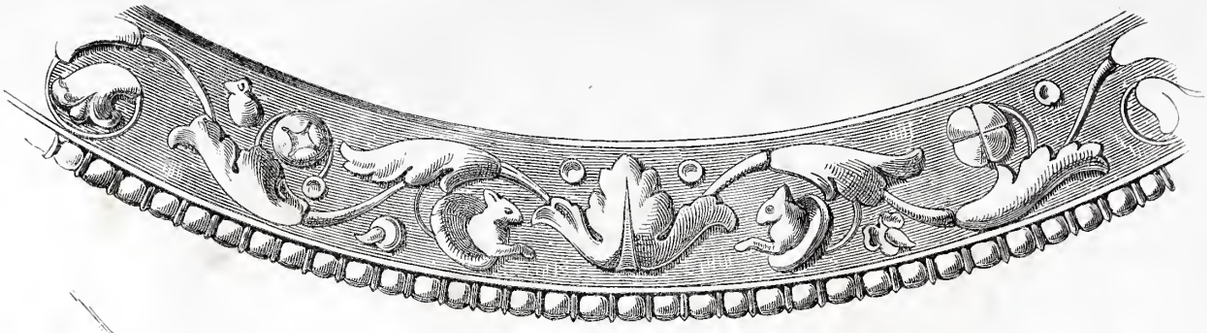
No. 3.



No. 4. No. 5.

No. 3. Plan of Bulbed Part of richly decorated Cup.

Nos. 4 and 5. Drinking Cups, in form of Craters, with ivy ornament in niello-engraving, the leaves being green enamel. Grecian and Roman Niello engravings are very scarce.



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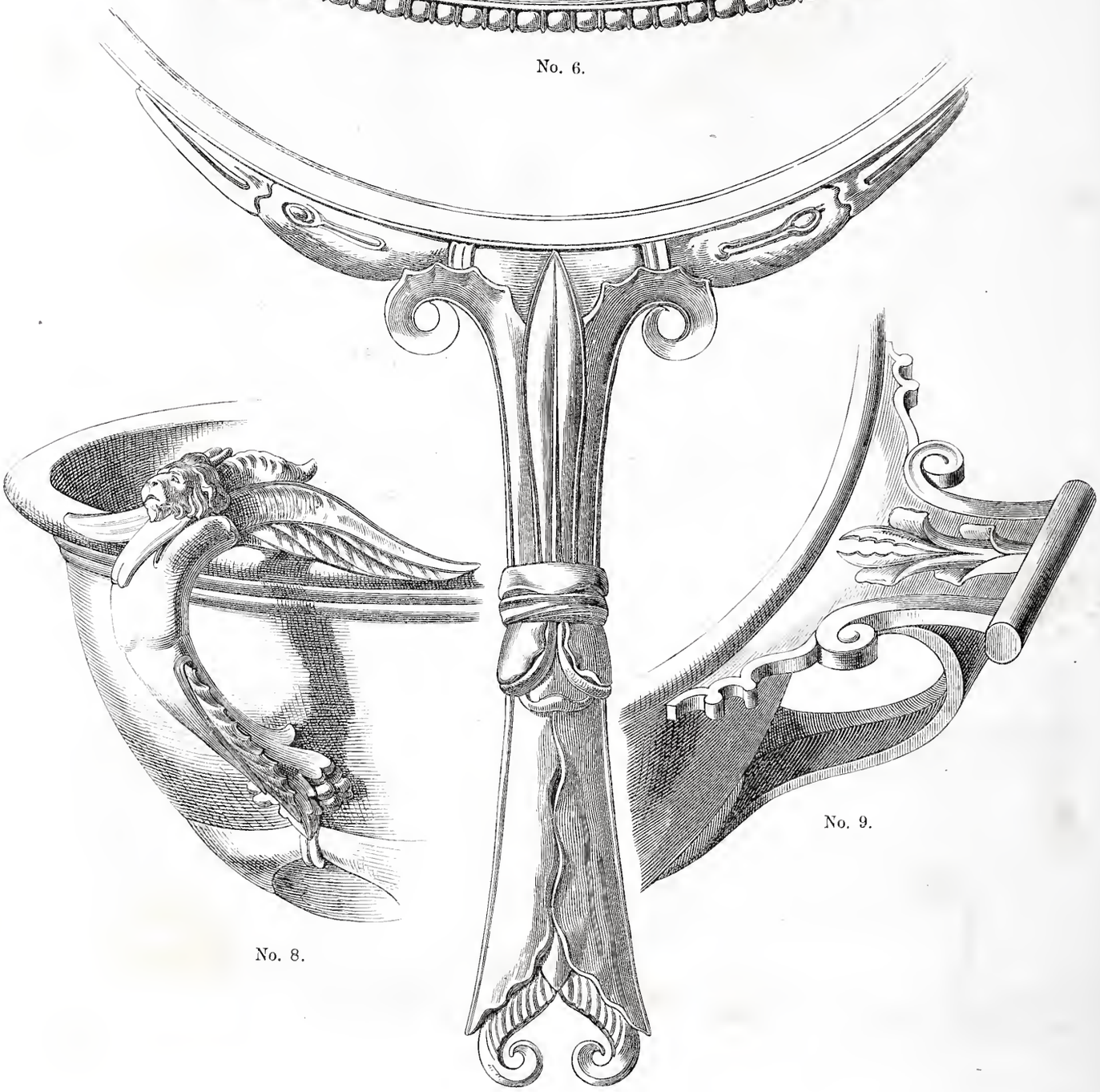


No. 8.

No. 9.

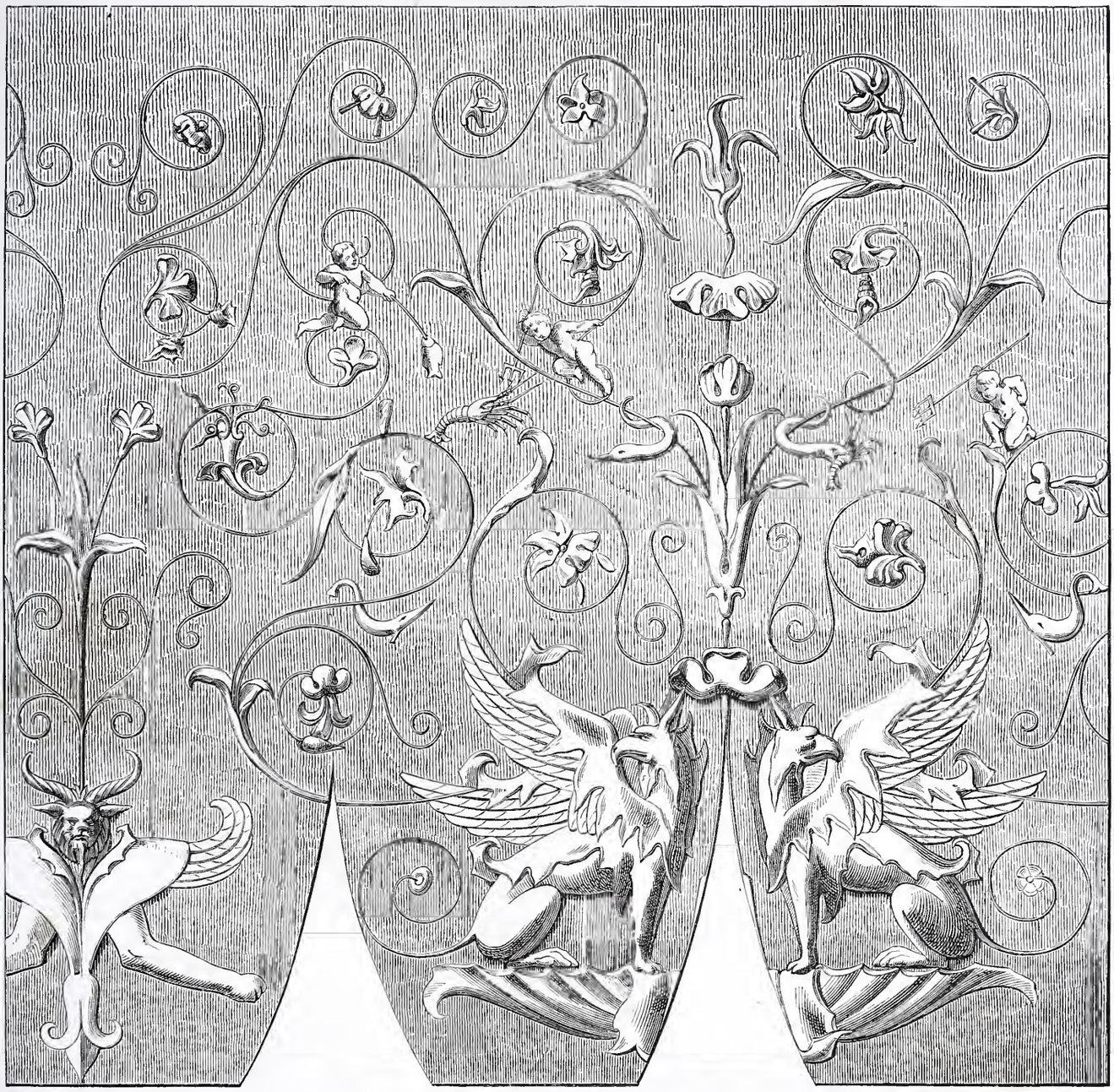
No. 7.

No. 6. Border of a round Plate.

No. 7. Handle of a Metal Mirror or Pan.

No. 8. Cup Handle.

No. 9. Handle of plate representing Minerva (see No. 1 Part 16).



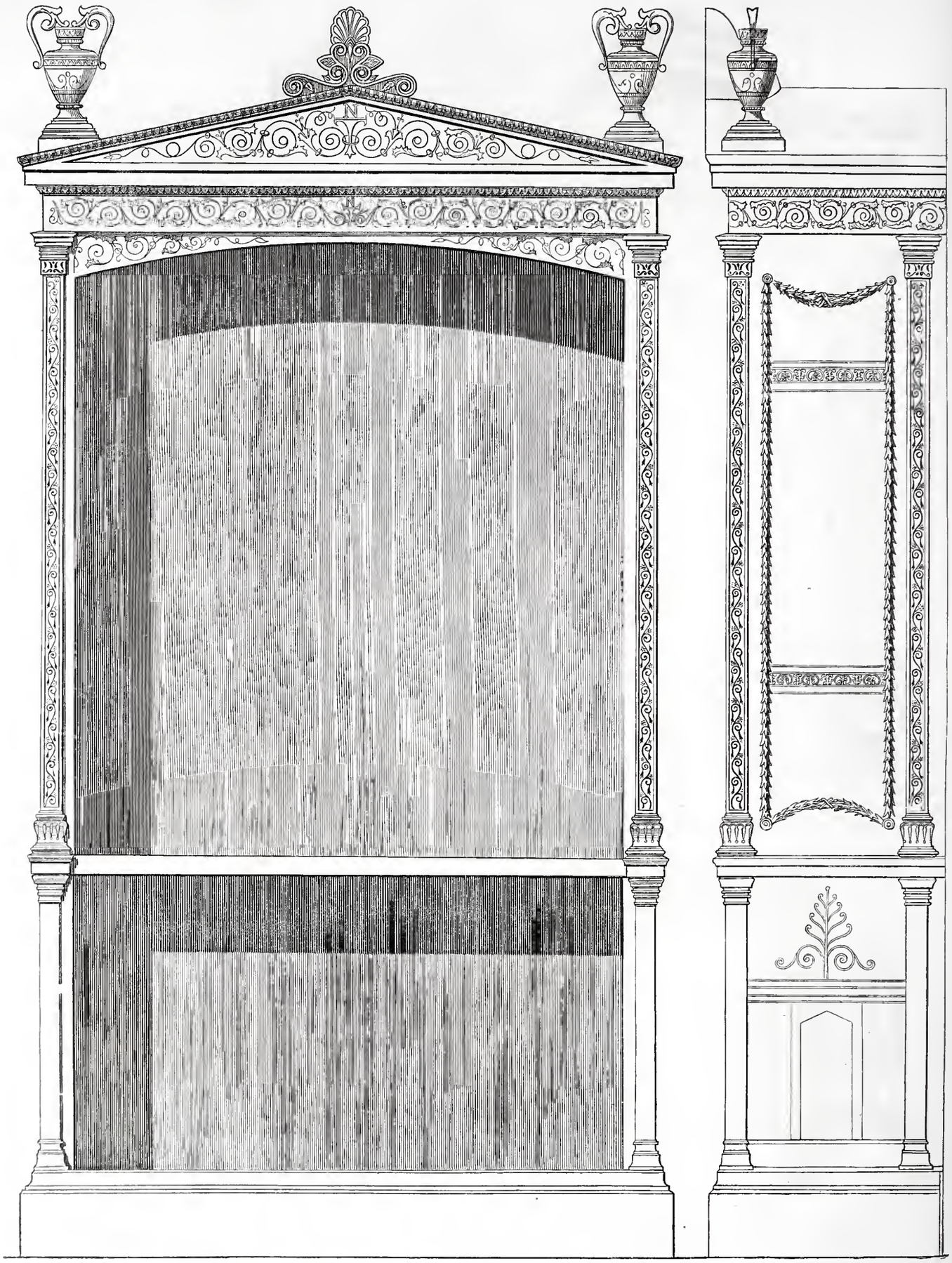
No. 10. Decoration of Bulbed Part of richly ornamented Crater.

No. 11. Presentation Cup in gilt silver for Mr. Noah Mannheimer, Chief-rabbin in Vienna.
Executed after the design of Mr. Th. Hansen, Archt.

No. 12. No. 13.

Nos. 12 and 13. Chimney-Piece; Front and Side Elevation.

Plinth, consoles, pilasters at the four corners, frieze and cornice terra-cotta with partial gilding of the ornament; slab, frame-work of pier-glass and tiles glazed earth; front of chimney-piece polished iron. For full-size details see No. 1 of Supplement.
Mr. J. Lundwald, Archt., Frankfort.

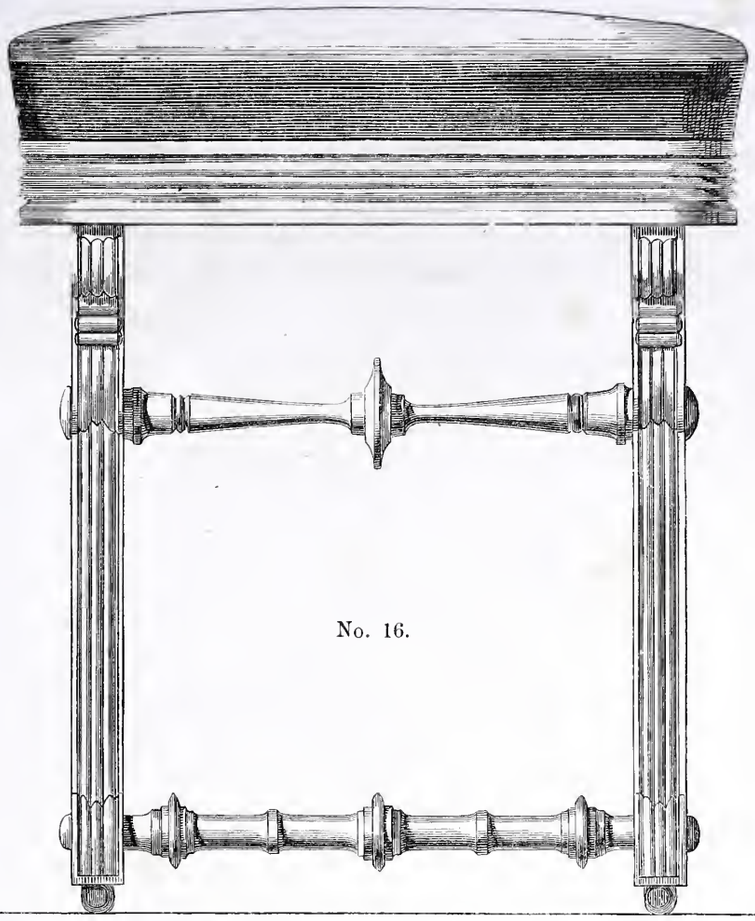


Nos. 14 and 15. Book-Case in the Pompeian House of Prince Napoleon.

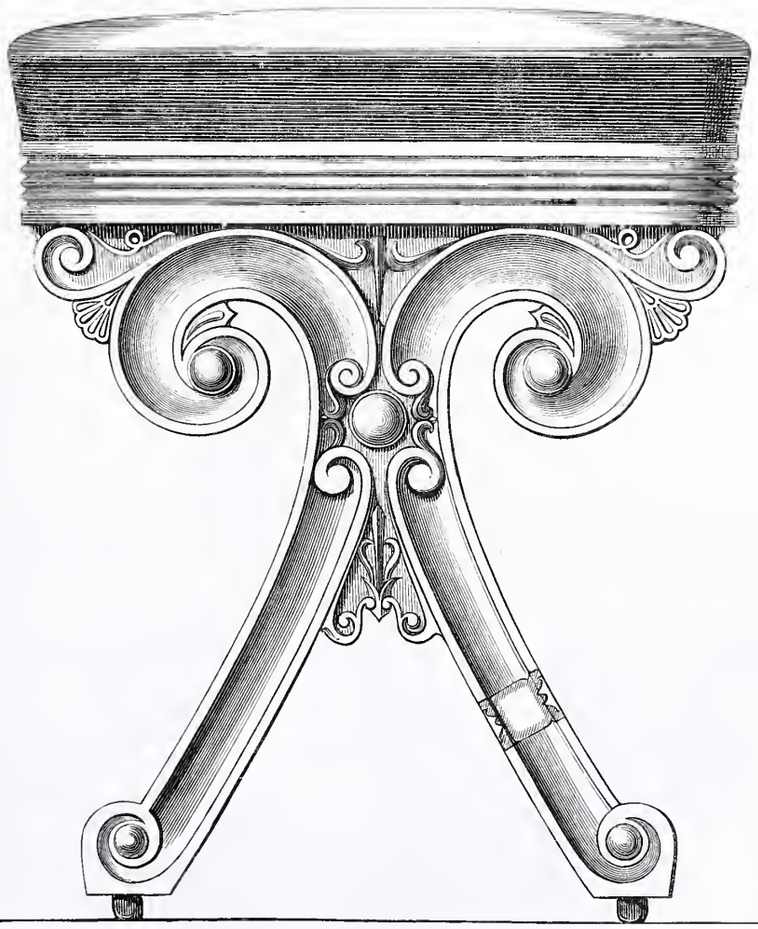
Plinth and pedestal black, with red ornament in front, red and green fillets on both sides; cornice, pilasters and frame work of upper part green, with red and gold arabesques, side elevation and back red, with green ornament; tympanum vermillon ground; acroteria, bases and capitals of pilasters picked out in gold; the corners being surmounted by two vases form the Prince's Collection.

For Details see No. 4 of Supplement.

M. Alfred Normand, Archt., Paris.

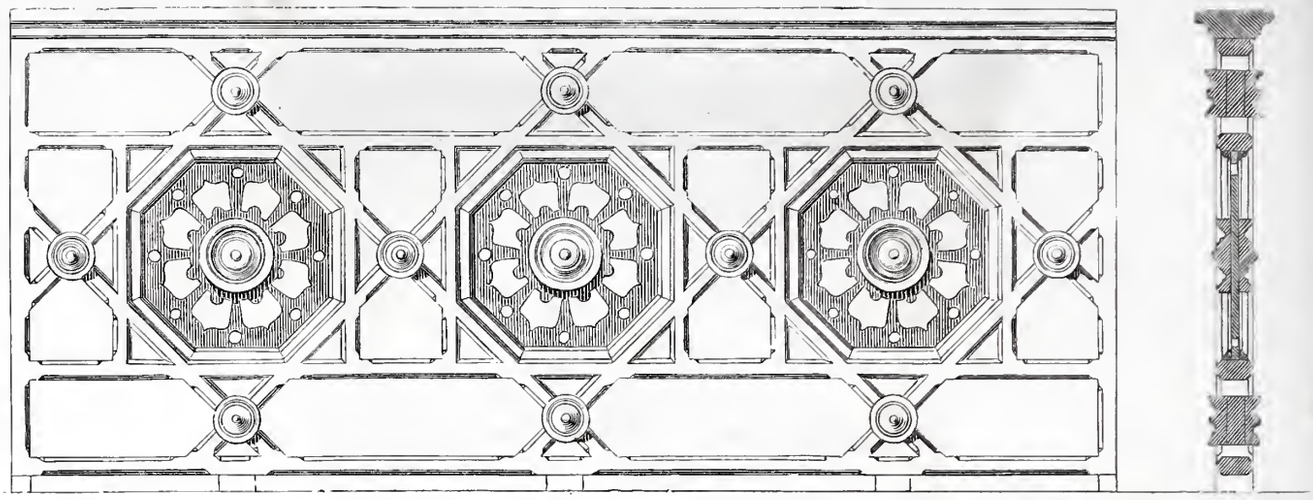


No. 16.



No. 17.

Nos. 16 and 17. Tabouret in the Great Saloon of the Pompeian House of Prince Napoleon; front and side elevation.
For Details see No. 2 of Supplement.

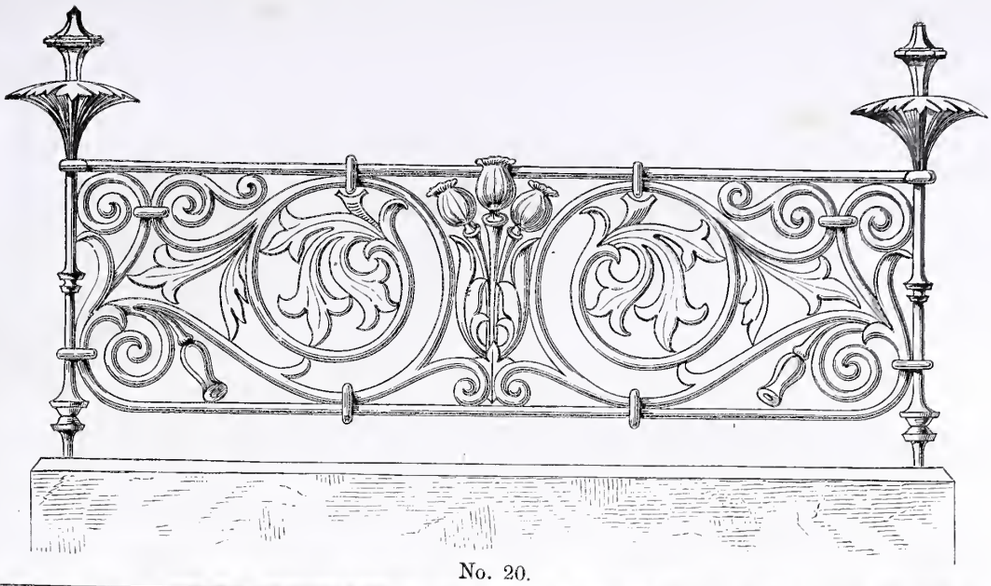


No. 18.

No. 19.

No. 18. Wooden Railing for a Balcony.

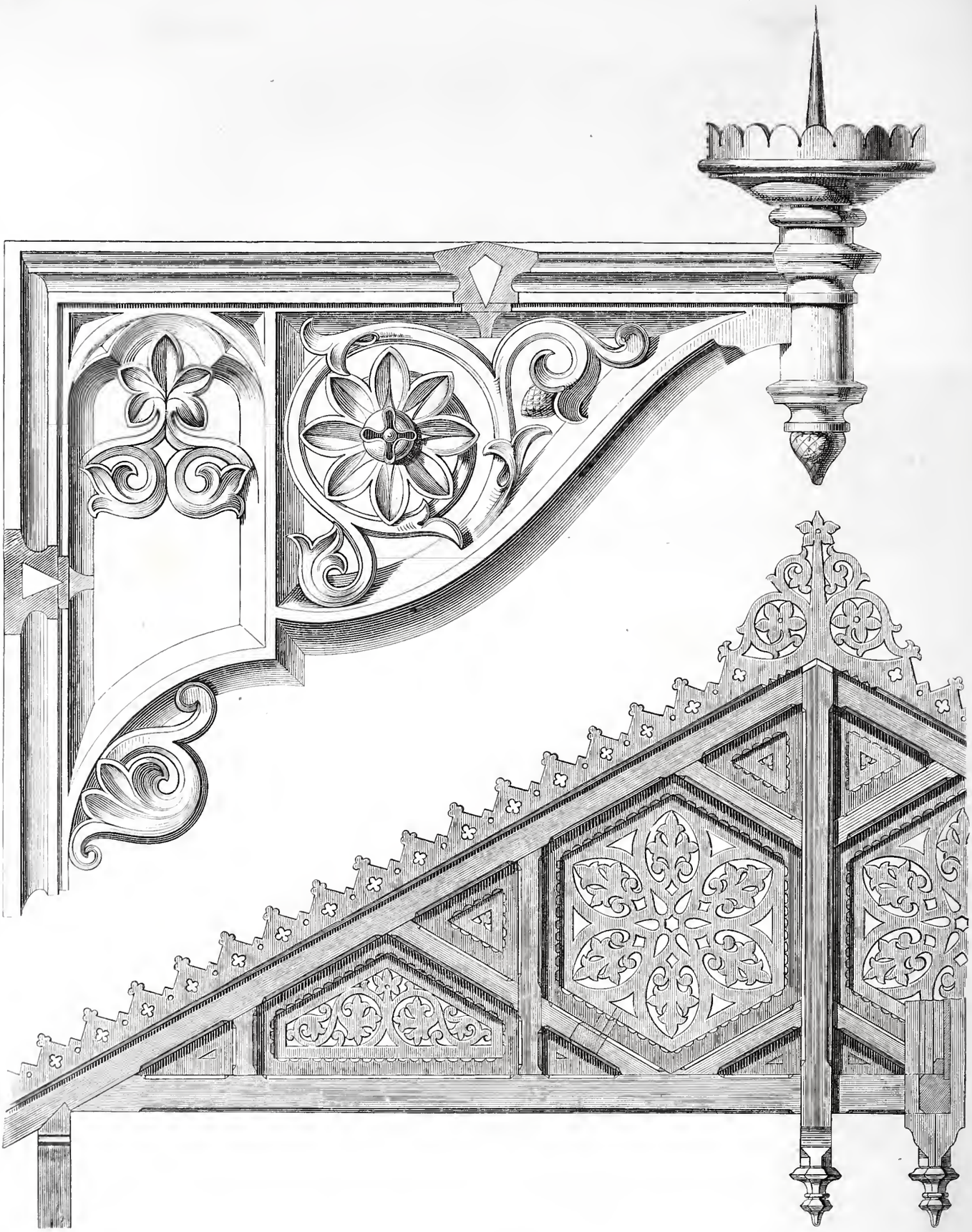
No. 19. Pattern for Church vestments in white silk damask with gold, the ornamental types being the flowering crown of thorns and the thistle.



No. 20.

No. 21.

No. 20. Wrought-Iron Tomb Enclosure.
For Details see No. 6 of Supplement. — Mr. Durm, Archt., Carlsruhe.
No. 21. Design of Ceiling.
The narrow borders black with crimson; compartments dark blue with light-green ornament, corner pieces indian red, light red and white; leaves of inner border olive-green with brown stems; exterior framing line green; shaded part of centre-piece standing for green, black for bright red, white for yellow ochre, the surrounding scrolls and ornament being yellow outlined with red-brown on sapgreen ground. For Details see Supplement, No. 5. — Mr. V. Teirich, Archt., Vienna.



Nos. 22 and 23.

No. 22. Cast-Iron Candle Bracket.

No. 23. Ornamental Wooden Gable-End with curvilinear sawings.

Nos. 24—26.

Nos. 24—26. Wrought-Iron Hinges from the old warehouse on the Limmat, Zurich (1618), 1/10 full size.

No. 27. Looking-Glass Frame.
For Details see Supplement, No. 3.

VARIOUS.

Artificial Production of Alizarin.

The red substance to which madder root owes its value as a dye has long been known to have some close relationship either to naphthalin, one of the constituents of the coal tar produced in gasworks, or to some chemical analogue of that substance, and its artificial production has been for some time a problem of great interest to chemists. Quite recently it has been announced at a meeting of the Chemical Society of Berlin that alizarin has been obtained artificially from anthacene or paranaphthalin, a solid hydrocarbon contained in gas tar, which has sometimes been used in an impure state, as a kind of coarse grease for machinery. The method by which it has been converted into alizarin has not yet been clearly described, but it is stated that the artificial product is identical with the alizarin of madder root in its behaviour with mordanted cloth. If this discovery can be rendered practically applicable, it would be of very great value, and a very important addition to the long series of dyeing materials now obtained from coal tar. The consumption of madder in the printing of calico and in dyeing is enormous, large tracts of land are occupied in the cultivation of the root, and it forms the basis of a very extensive branch of commerce; consequently the possible artificial production of alizarin from such a source as coal tar may be looked forward to as likely to give rise to a new trade of great importance. *Engineering.*

Fine Art Exhibition.

A universal Fine Art Exhibition will be held this year at Munich in the Crystal Palace of that city; it is to take place after the closing of the Paris salon, in June, in order to give French artists an opportunity of presenting their works. The prestige of Munich in matters of art is expected to give additional interest to this exhibition.

The Workshop

A Monthly Journal, devoted to Progress of the Useful Arts

EDITED BY

PROF. W. BAUMER, I. SCHNORR AND OTHERS.

VOL. I. No. 18.

THE WOODWORK OF THE RENAISSANCE.

By Mr. Joseph Durm, Archt.

With Illustrations from original drawings.

In no other branch of the Art-Industry of the Renaissance does the decorative element, which characterizes the art-creations of this epoch, and which is so full of grace and charm, stand out so pleasingly, and show such important results, as in those very productions which, although formed of the most unpretending material, viz., wood, reach the very height of perfection of which this style of work is capable; some of them remaining for ever models of classical taste and elegance. This opinion has been and is confirmed by the productions of nearly the whole of modern cabinet-work; for with the exception of a few capricious and extraordinary imitations of mediæval style, which have made their appearance from time to time, this branch of Art-Industry lives, even to this day, entirely on those creations, treating them with a greater or less degree of skill and success.

We get now either mere reproductions, blameless enough indeed, or we find, tho' rarely, something still more highly worked up in the style of the great masters of the Cinque-cento, or, and this, alas, is most frequently the case, misunderstood types, worn out, used up, "flat, stale and unprofitable".

The last Paris exhibition afforded an excellent general view of the productions in this department of Art-Industry, and at the same time a full confirmation of the opinion stated above. With a due estimation of our modern views and necessities, which have some title to put in a word on the style and form of our productions of the Useful Arts, a too slavish adherence to the epoch selected was, with much tact, avoided. To the honor of Art-Industry at large it must be said that there was a greater harmony and agreement among all nations with regard to style in this than in High Art, and that the influence of the Renaissance has penetrated everywhere.

Some productions of French artists were perfect gems, and may vie with the best creations of the best time.

What is most needed in the art-workers and manufacturers is in the first place a true understanding of style and conventional treatment. The extreme want of these accomplishments, together with the antiquarian or archæological sham-productions in which artists and public liked hitherto to indulge, has led to a great confusion in matters of art in general, and to a misappreciation and misapplication of ornamental and decorative features.

The history of art is often reflected in one single object, Gothic in its beginning, Rococo in its termination, or vice versa; others are reduced into a barren naturalism, knotty branches with or without foliage forming frames, and a wood-box looking like a real pile of wood, and other objects of the same kind. The cause of this perverted application of ornament is to be sought in the course of instruction, prevalent in the generality of the schools of art, in which the pupils usually copy only fragments of ornament, the greatest importance being attached to an artistic treatment, without directing the attention to the relation which the fragment bears to the whole from which it is taken, or to the functions which it performs.

This confusion in relation to style we must endeavour by all means to repress, and place a barrier against it by a deep and thorough study, not only on historical, but technical grounds; that is, we must bring into account

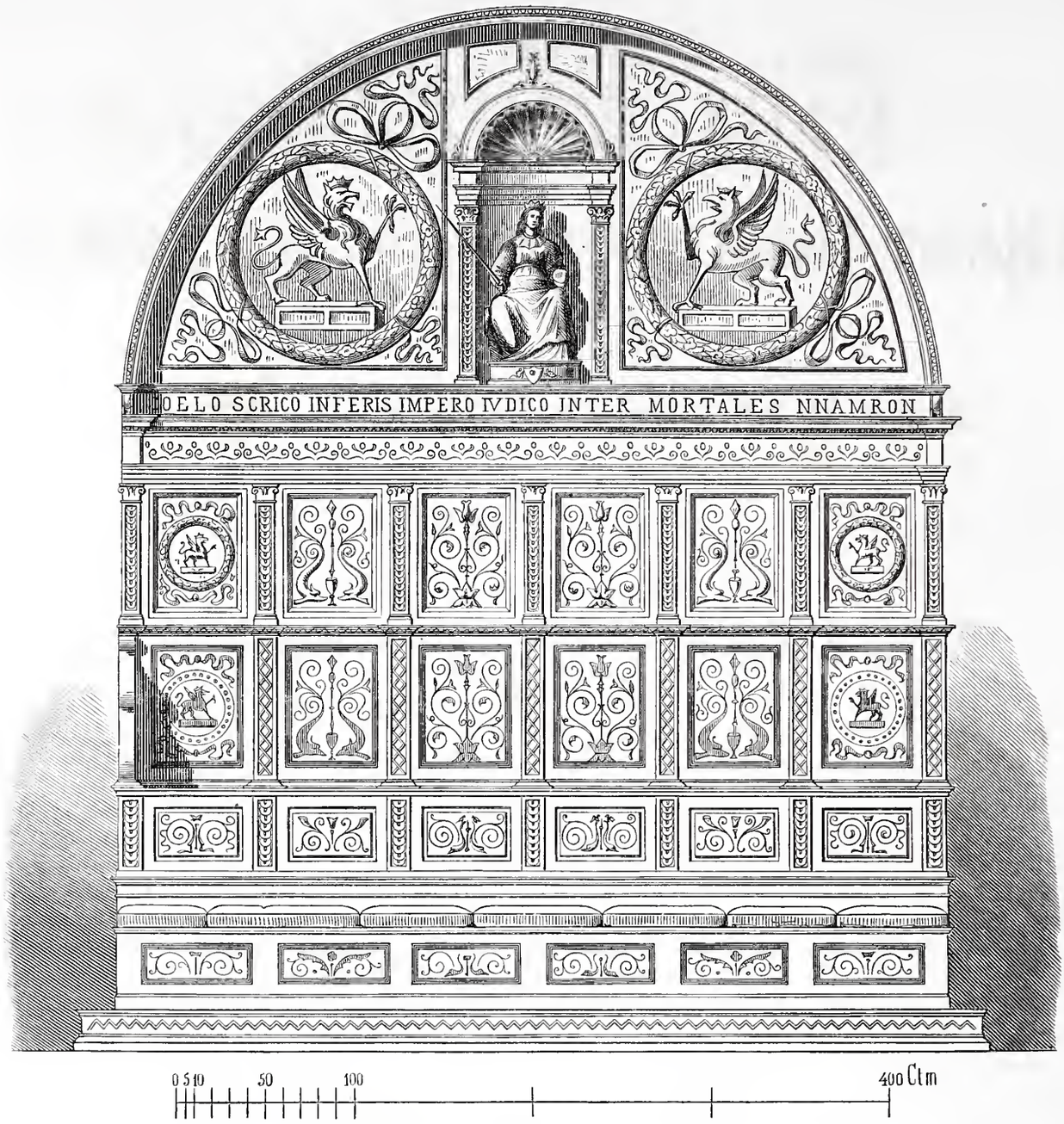


Fig. 1.

the peculiarities of the material which we use in our art-productions, and profit by the knowledge of its advantages and disadvantages in connection with art.

An interest in the study of style in art must be awakened by public exhibition of master-pieces of all times, from the frequent observation of which the taste and sound sense of the public would speedily demand similar things, i. e. excellence in general for every kind of household furniture; the art-workmen would be obliged to exert themselves and to study to meet the requirements of the public; and where the interest is generally excited, the comprehension will soon follow and with it the respect for the artist and his work.

Again; we desire before all things to cultivate a popular taste, but in the practical manner which we have pointed out. Any amelioration in relation to Art must proceed from and develope itself from the people. It is not alone the artists who are to blame for their unfortunate productions; too often they are compelled by external circumstances to pay homage to a corrupt taste, because objects of a certain shape, when in fashion, are easily saleable, while the better productions of the craft often become mere drugs in the market.

But let us return to our more especial subject; the peculiarities of the material of which we are treating are, first of all, its hygrometric properties, and then its almost stereotomic ductility.

The defects, as well as the advantages of the material must be taken into consideration in our compositions; if, e. g., the stout wood, the surface of which is to be ornamented, splits easily length-ways, the ornament must take the direction of the fibres, that the flaws which may occur may not detract from the nicety of the design; and as broad planks are most liable to split and warp, comparatively small ones should be preferred.

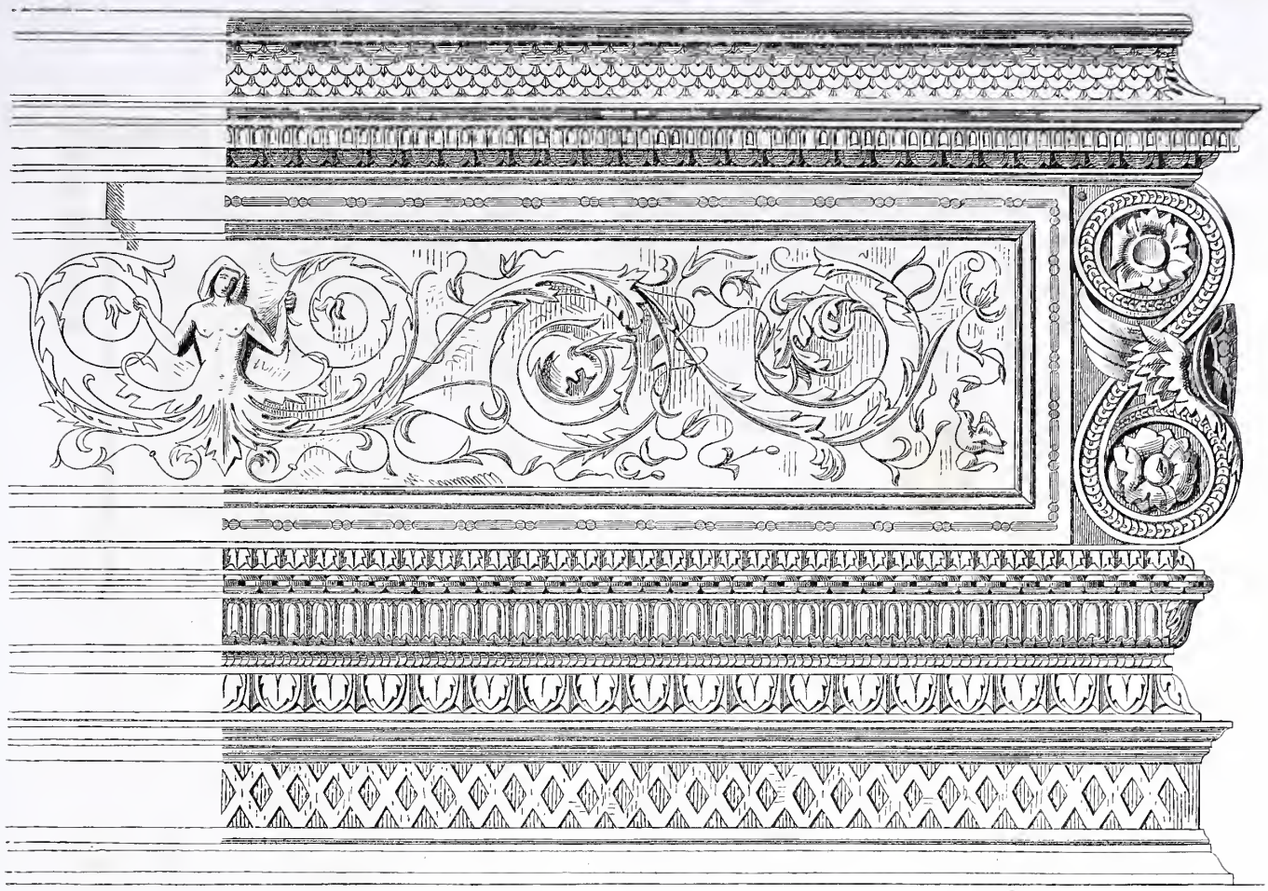


Fig. 2. 1/10.

In the compositions of the Renaissance period we find all these peculiarities taken into account, and everything that can impair the solidity of the object avoided with great care and intelligence.

The means of giving the required form to the wood were rather limited, cutting with the saw, plane, or knife, and filing, boring, and turning being the only processes available. The artificial bending of the wood by steam, the wood-pulp, the *bois durci* was not yet discovered. With the latter an appropriate treatment of the wood in its peculiar style is out of the question, since by its entire transformation it can receive any form whatever, even one which may be quite opposed to the peculiar properties of wood.

The surface decoration of the wood is either relief work, carved in every style from the flattest to the boldest and most prominent treatment, or marquetry (*tarsia*), i. e., flat inlaid work, or also variegated painting. This last was afterwards almost wholly superseded by marquetry, and appears at last only in a few gilded, ornamented mouldings, or on very small spaces.

The introduction of marquetry is doubtless owing to its great durability, in opposition to the too easily injured and perishable painting, especially in objects intended for daily use.

This exchange will be duly appreciated, when we see how the *tarsia* work is treated, the tenderest shades of color, from the lightest yellow to the darkest brown and even black, being blended with great intelligence and skill, while the pictorial effect is admirably preserved, and historical compositions, landscapes, simple vessels, interlaced bands, and vegetable ornaments are handled with similar grace, and shaped in a masterly and most skilful manner.

The finest specimens of this kind are shown in the marquetry of the stalls in S. Maria maggiore at Bergamo by Giov. Franc. Capo Ferrato. Monks and simple artizans of Lombardy were the originators of the cabinet work of the Renaissance in Italy; they attracted high consideration for their art both in their own country and far beyond its limits, and showed to what height the productive power and genius in art of a people may rise in a healthy period without any æsthetic lectures or the tutorage of artistic doctrines. But also the most eminent artists of the epoch did not disdain doing their very best by trying their skill on the creations of the Useful Arts, Peruzzi, Giuliano and Benedetto da Majano being frequently engaged in their active promotion. The excellence of their composition and execution in this province of art is a witness and the best proof of the ardour with which they applied to this work. At a later date, Belgian and German masters of the Renaissance gained no less reputation in this branch of Art-Industry, and being likewise first rate artists, produced most excellent specimens of their art.

Generally the carved borders of the surfaces either represent some architectural design or boldly executed figures of men and beasts, chimeras, and vegetable ornaments in high perfection, both of conception and workmanship. The architectural features, mouldings, cornices etc.,

Fig. 3. Fig. 4.

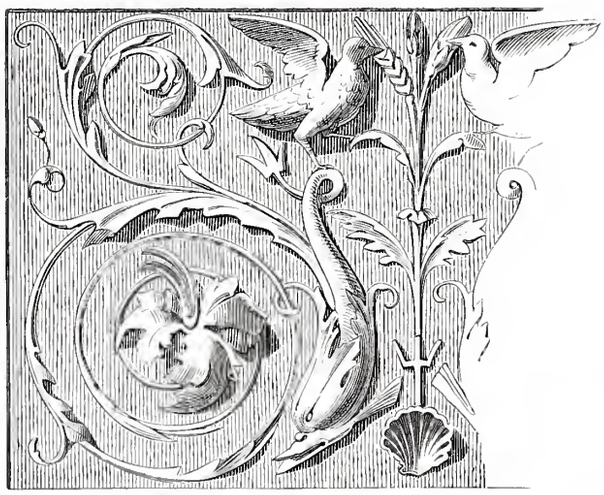


Fig. 5.

which bind, separate, encircle, or crown the structural parts are rather thin though strongly projecting as is fitting for woodwork. On account of the extreme ductility of the material the mouldings were in very few instances left quite plain, being adorned with the carvings of egg and tongue, beads, leaves, etc., and contributing not a little to raise the general impression of richness and elegance. Many of their compositions suffer from a certain exuberance, a mass of ornamental forms being exposed to view; but this reproach is more easy to be borne, than that uniform flatness of many modern productions, which, under the appearance of a so called simplicity, do not conceal a lamentable poverty of imagination.

The productions of Art-Industry in general which have any pretension to rise above the level of the merest common neccessities must display a certain degree of ornamentation, if they are to please. But in many cases, by the want of skill in the workmen of the present day in this department of art, a cheap and good execution of the decorative parts of these productions becomes impossible. The carvings of Cambio in Perugia, (about 1500,) with the wood left in its natural color and but sparingly gilt, rank perhaps among the most beautiful and elegant creations of the kind. Relief-work, marquetry and richly ornamented mouldings vie with one another in their perfection. Behind the richly carved pulpit (fig. 2) the design of which is attributed to Perugino, above two graduated rows of seats executed in the noblest style, rises the mural decoration (fig. 1), following in its upper part the form of the vault covering the room.

The semi-circle is enlivened by a niche decorated with a statue, the spandrels right and left adorned by griffins (the supporters of the escutcheon of Siena) standing on money-chests. The crown, sword, ball, and drapery border of the little figure are gilt, as are also the fillets of the architectural mouldings framing the niche. The raking cornice crowning the semi-circle rests on two boldly projecting consoles, the soffit of the arch being divided into small sunk compartments in which gilt flowers are placed.

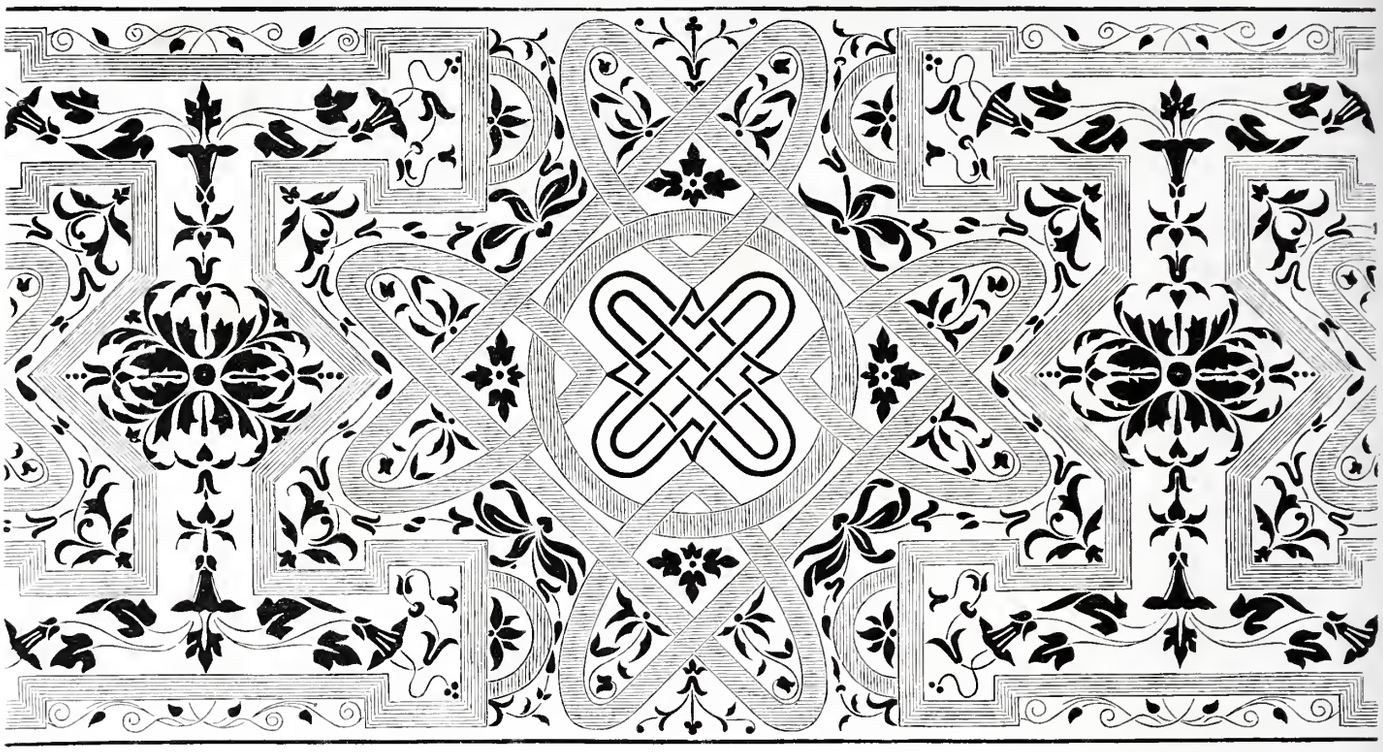
The panels between the pilasters under the entablature are richly and nobly ornamented and of excellent effect in their bold relief, the designs varying in the drawings given in figs. 3 and 4 and in the griffins encircled by fruit wreaths. The panels beneath these repeat the designs, but being intended as backs for the upper row of stalls they are not carved but decorated by marquetry.

The front of the upper row of stalls is adorned with reliefs of three different patterns, one of which is given in fig. 5; that of the lower row with marquetry.

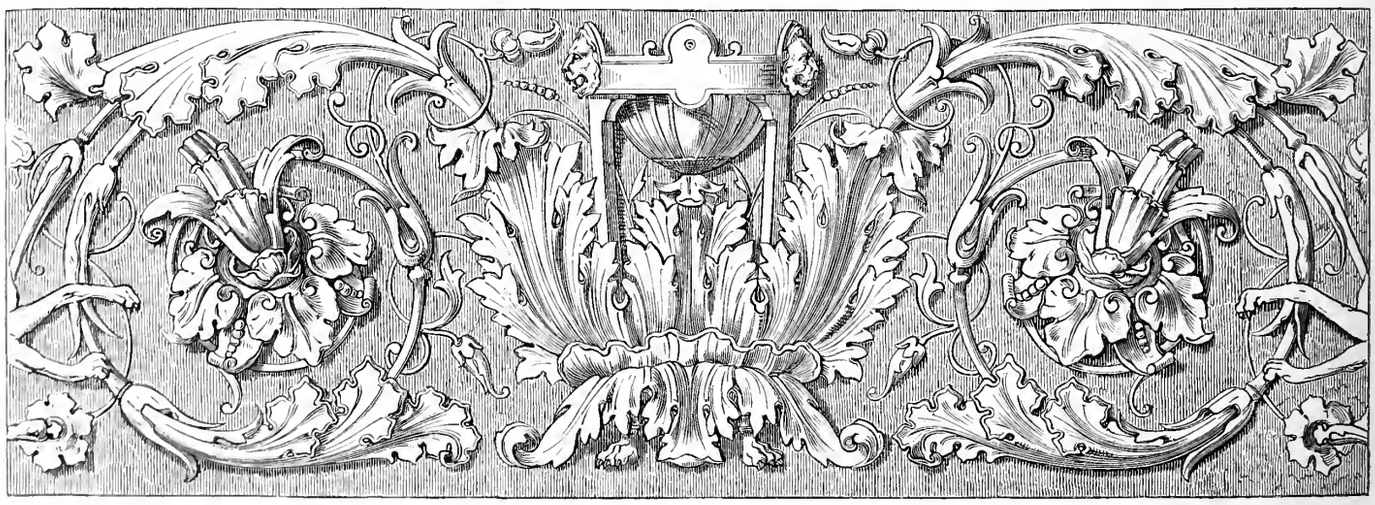
The front of the pulpit is executed in the most exquisite manner; almost every profile is of the utmost elegance, and ornamented in the most perfect harmony with its proper functions. The panel is enriched with carving in bold relief while the bead-roll only which encloses the frame is of inlaid work.

The walls and vaulted roof of the comparatively small space in which all this exquisite specimen of Italian woodwork is displayed are covered with the noblest paintings by Pietro Perugino and his pupils, and thus an interior is provided, which has no where its equal in the harmonious effect and the perfection of its artistic execution; no magistracy in the whole world being so splendidly seated as the merchant judges of the capital of Umbria.

Specimens of Ornamentation.



No. 1.

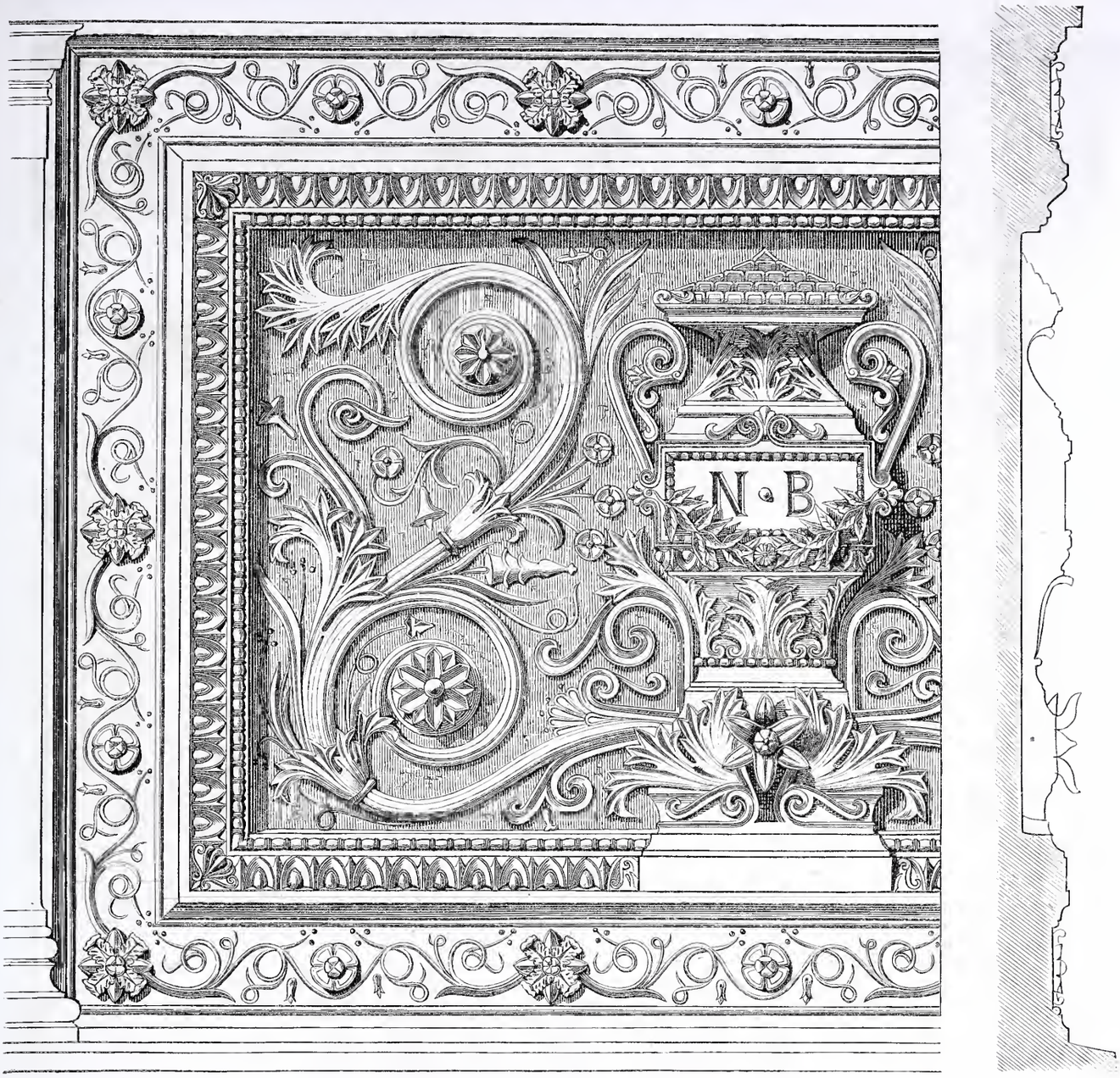


No. 2.

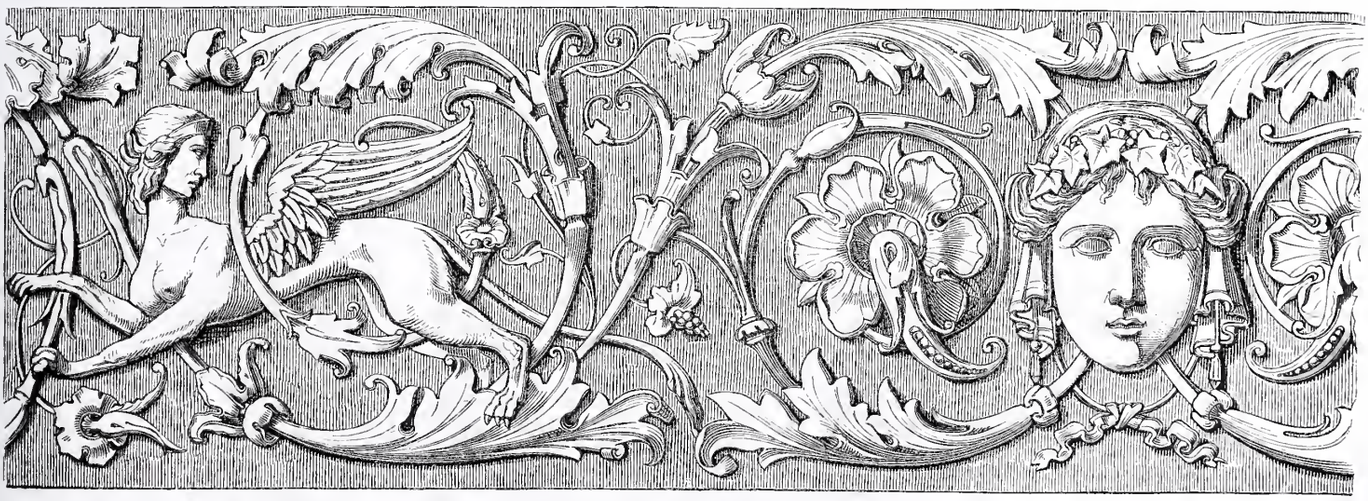
No. 1. Panel Decoration of Wainscoting in Sacristy of S. Maria in Organis, Verona.

Inlaid sixteenth century work; ornament in ebony; 1/2 real size. — Mr. A. Gnauth, Archt., Stuttgart.

Nos. 2 and 3. Stucco Frieze from Ball-room of the Royal Villa at Berg, near Stuttgart; 1/5 real size.

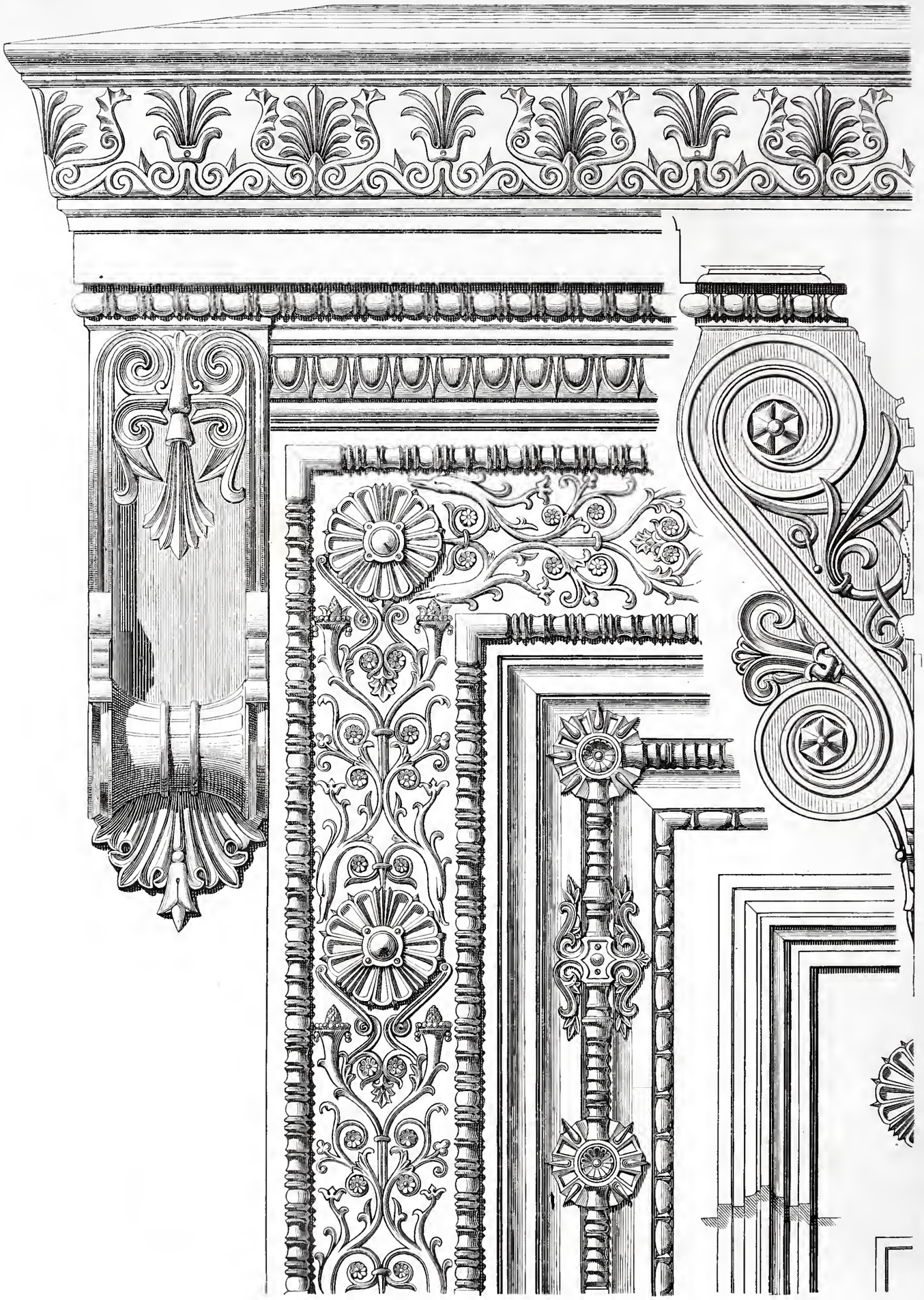


No. 4.



No. 3.

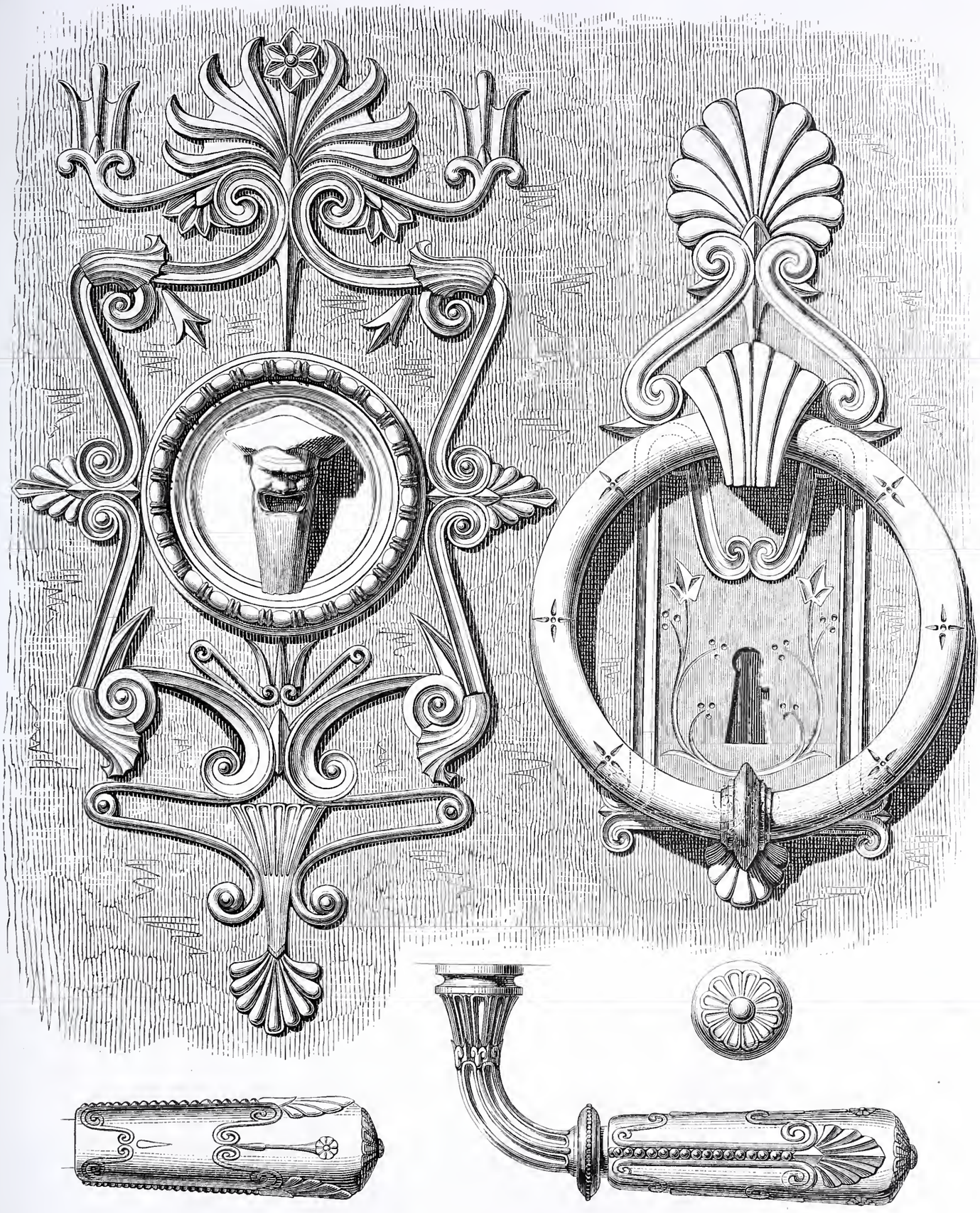
No. 4. Richly ornamented Panel from the Façade of the Pompeian House of Prince Napoleon, Paris; 1/4 real size.
M. Alfred Normand, Archt.



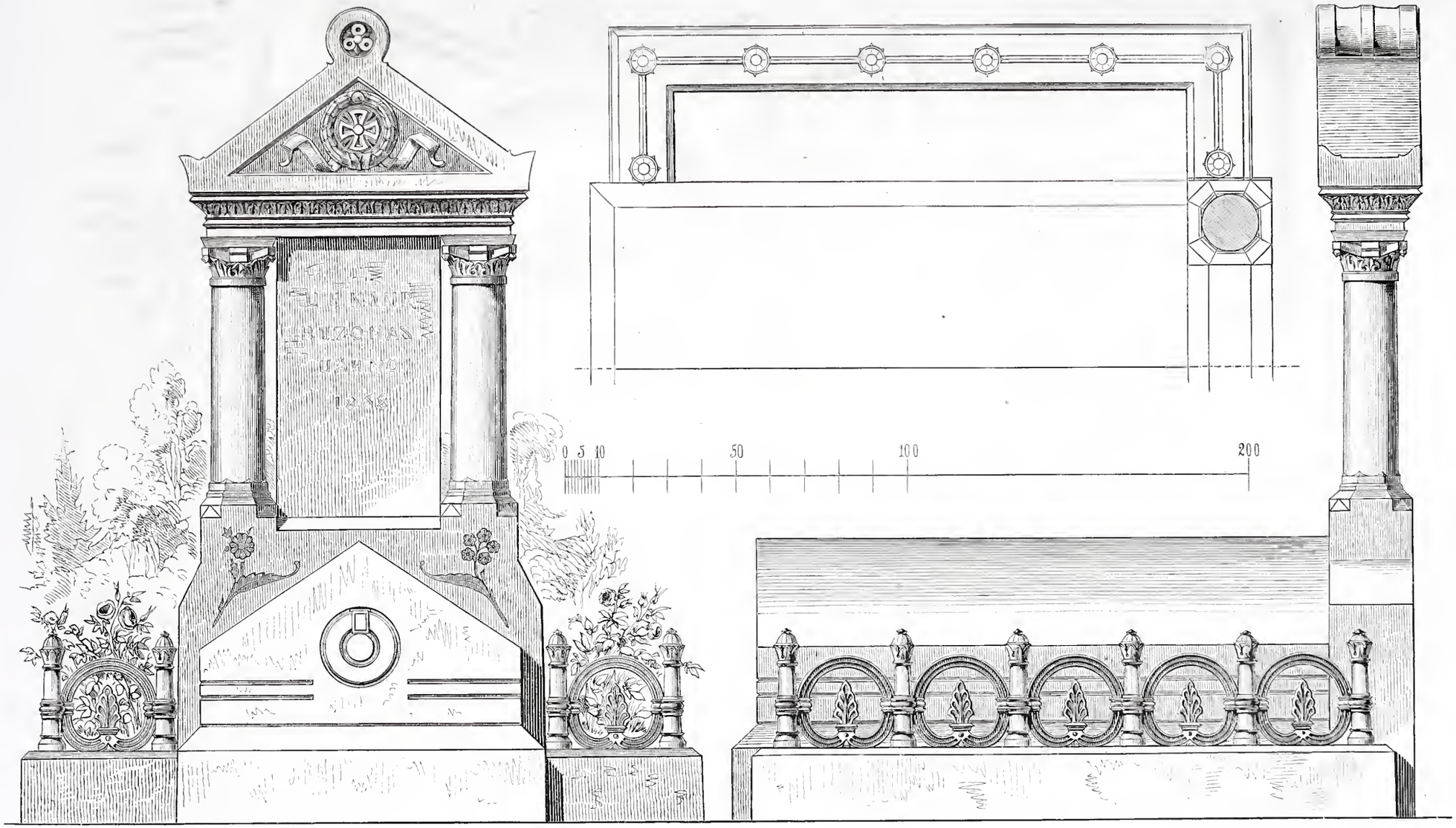
No. 5. No. 6.

Nos. 5—11. Details of Entrance Door of the Pompeian House of Prince Napoleon, Paris. Bronze dressings, wooden door leaves with bronze mountings and ornaments. — M. Alfred Normand, Archt.

Nos. 5 and 6. Detail of Upper Part of Door, for full size design of which see Nos. 8 and 9 of Supplement.

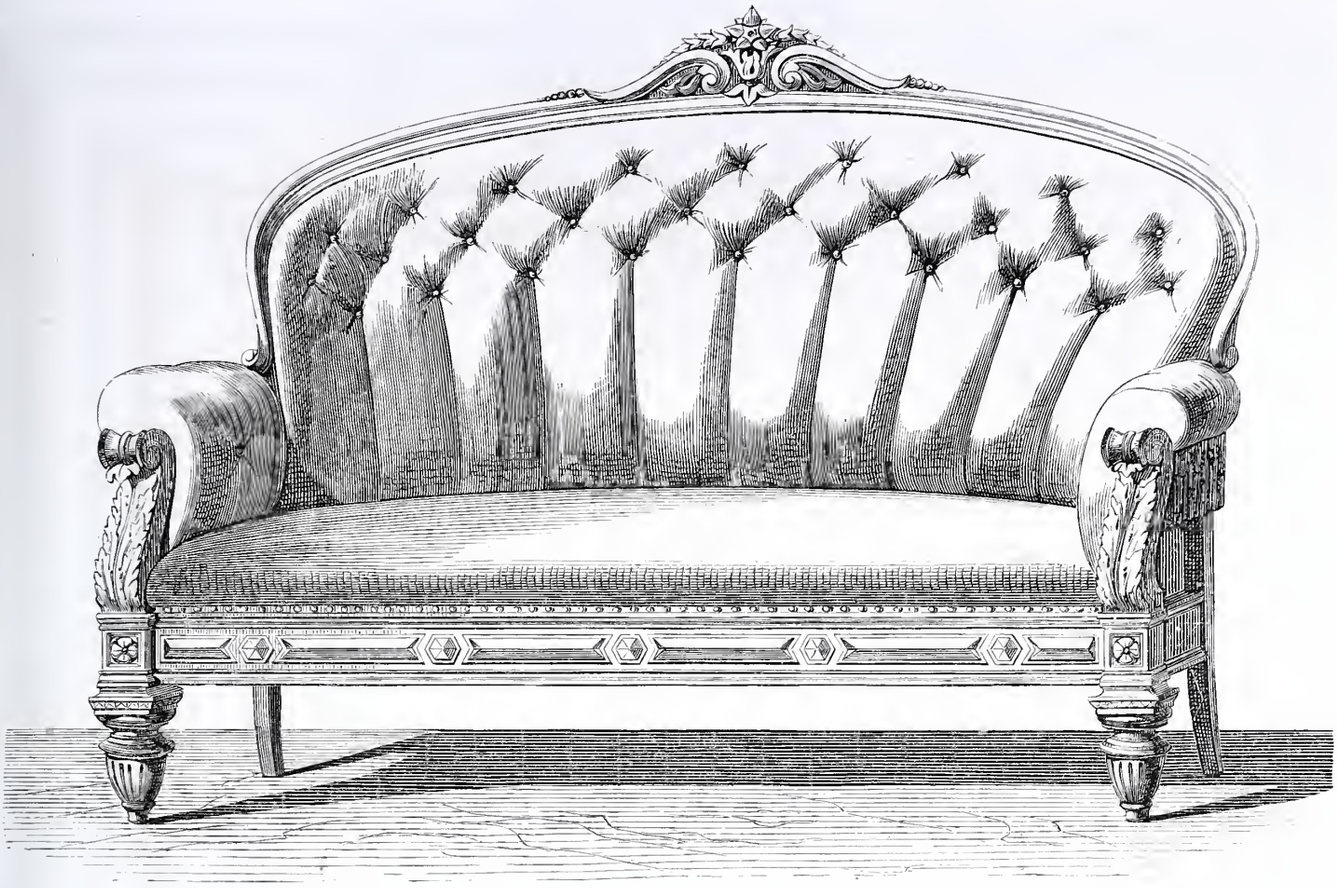


Nos. 7—11. Panel, Lock, Knocker and Handle of Door

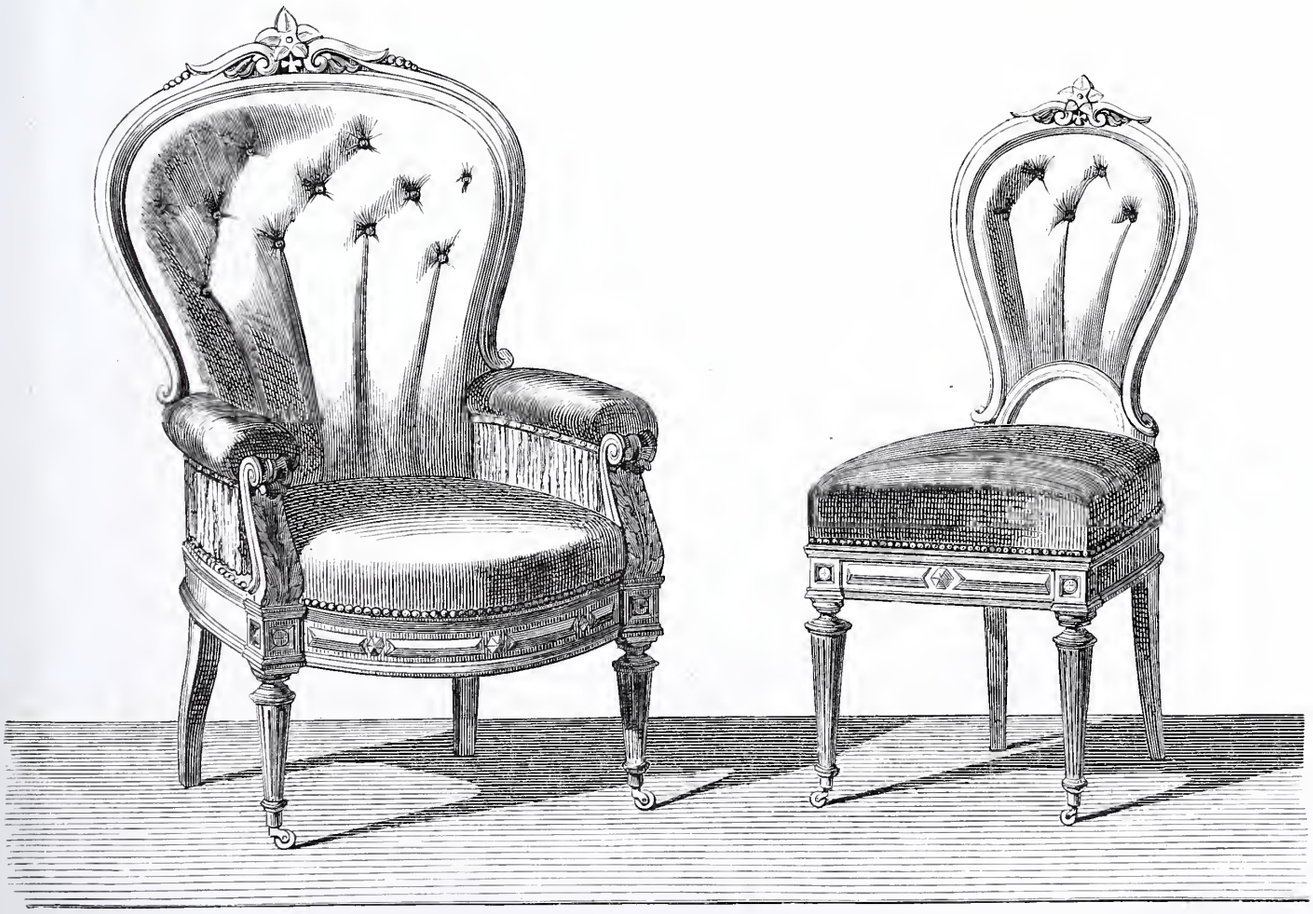


Nos. 12—14. Sepulchral Monument near Paris. Front, Side-elevation and Ground-plan.

Details 1/4 real size in Nos. 3 and 4 of Supplement. — M. Vaudremer, Archt.

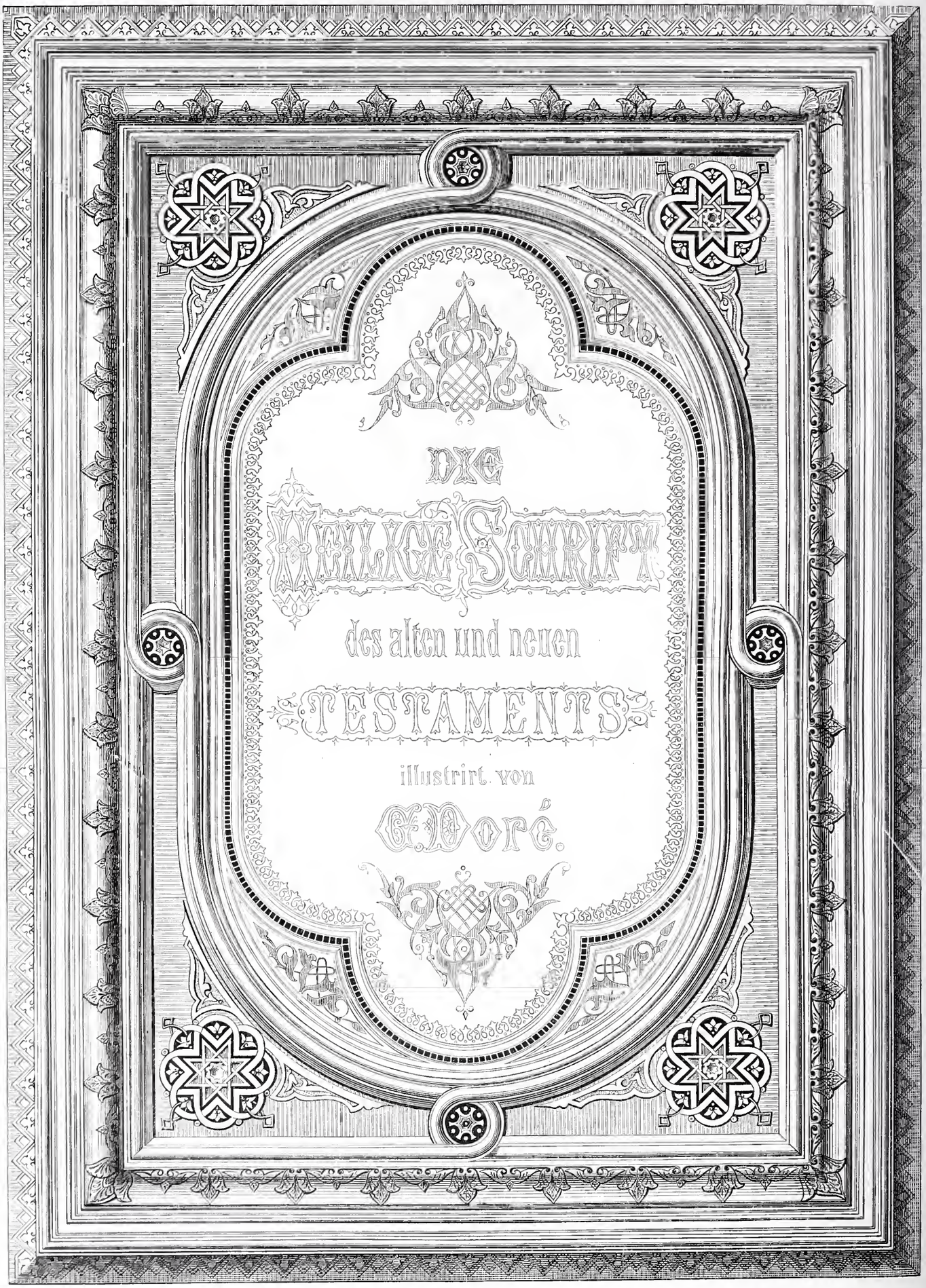


No. 15.



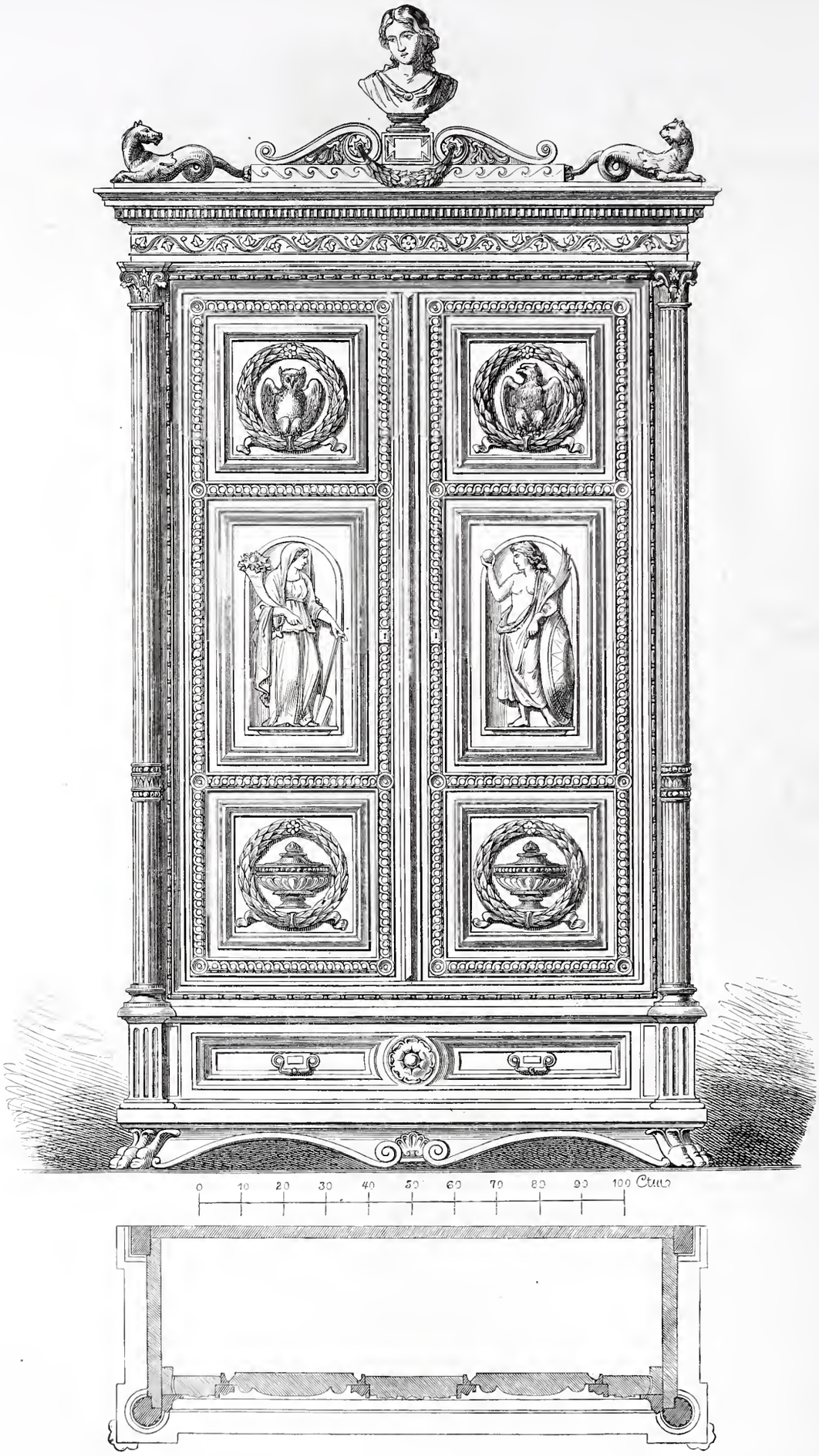
No. 16. No. 17.

Nos. 15—17. Sopha and Chairs; for full size details see Nos. 5—7 of Supplement.



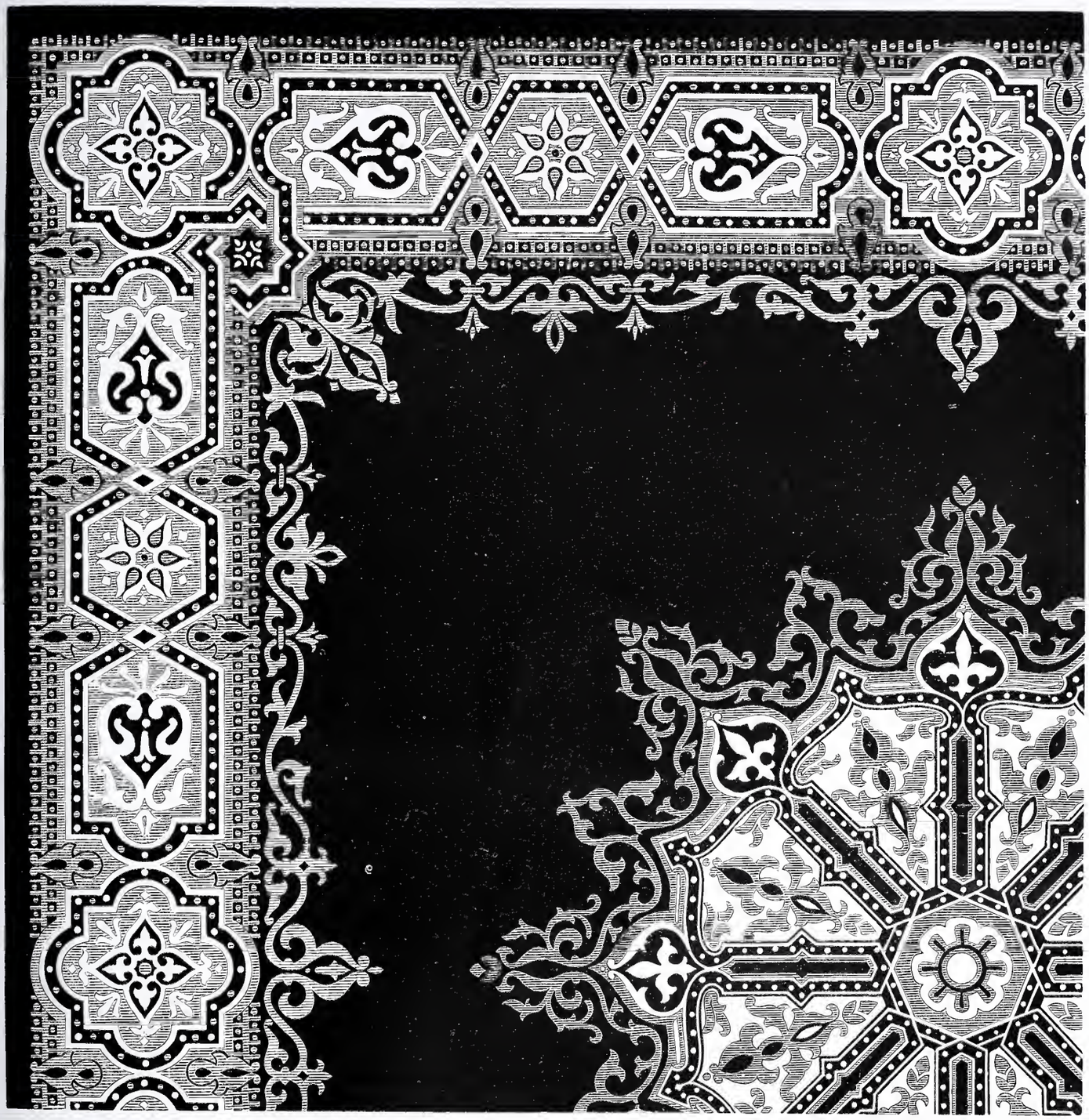
No. 18. Book Cover to G. Doré's illustrated Bible, from the design of Mr. J. Schnorr, Artist, for the edition in German published by E. Hallberger, Stuttgart.

No. 19. Silver Church Lamp; Modern Renaissance work.



Nos. 20 and 21. Wardrobe in hard wood, with bronze mountings of under drawer, capitals, mouldings and crowning cornice enriched with partial gilding.

For full size details see Nos. 1 and 2 of Supplement.

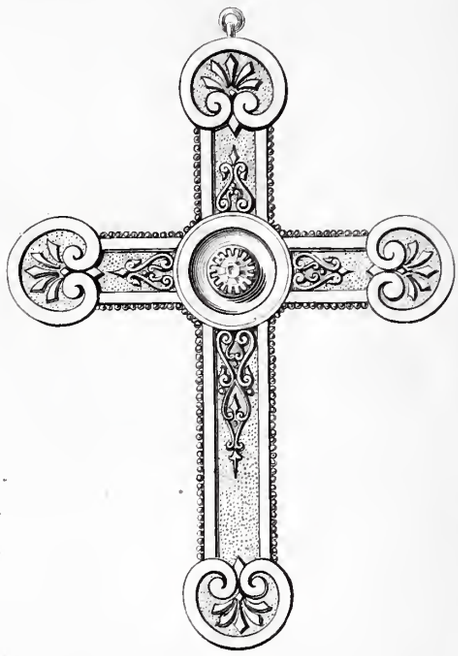


No. 22. Pattern for Textile Fabrics, representing Cover in brown and olive wool, interwoven with yellow silk.

No. 23.

No. 24.

No. 25.



No. 26.

No. 23. Jewellery. Bracelet, Brooch, Ear-pendants, and Cross; Modern Renaissance work. From designs of Mr. J. Schnorr, Stuttgart.

VARIOUS.

Transparent Colorless Lacquer.

Under this name, says *Scientific Opinion*, Messrs. Brodie & Middleton, of Longacre, offer for sale a preparation which promises to find its way very generally into domestic use. Every one knows that the lustre and polish of ordinary brasswork are due to the thin coating of ordinary lacquer with which it is covered, and which, by excluding the air, prevents the process of oxidation. But frequent cleansing removes this lacquer from microscopes, door plates, Mediæval chandeliers, and so forth; and the re-coating with the lacquer is both a troublesome and expensive process. The new preparation obviates these difficulties. It can be laid on by any one with a common camel-hair brush, the object need not be heated, and the action of the air is effectually prevented. This new substance is quite liquid, dries with rapidity, and is readily removed by turpentine.

An Improved Battery.

The last improvement in galvanic batteries is that suggested by Böttger, who proposes to substitute metallic antimony for carbon. An amalgamated zinc plate is immersed in a strong solution of common salt and sulphate of magnesia .The antimony, like carbon is placed in a porous pot; but the liquid used is dilute sulphuric acid. A combination of this arrangement is said to give a stronger and more lasting current than a cell of Daniell's battery.

The New Wing of the Tuileries.

The reconstruction of the southern wing of the Tuileries — that on the side of the Seine — rendered necessary by the entire rebuilding of the Pavilion of Flora, at its western angle, is rapidly approaching completion, so far as the front towards the Place du Carrousel is concerned. The two pavilions surmounted by open campaniles and ornamented with allegorical statues and an infinity of rich carving are the Pavilions Lesdiguières & La Trémouille, the arched gateways beneath which are appropriated to foot-passengers passing to and from the quay, while the larger arches, between the two towers, are set apart for carriages. A long gallery above connects the Tuileries and the Louvre; and in the block of buildings to the right is found the new Salle des États, the decorations of which are now being proceeded with. Twelve allegorical statues, destined to surmount the Corinthian columns in the basement wall of the Salle, have arrived within the last few days. The ceiling of the new gallery will represent the Pleasures, Games, and Loves escorting Bacchus; the execution being intrusted to the pencil of M. Carrier-Beleuze. Indeed, the chief point in these new buildings is the richness of the decorative element. At a time when vulgarity has, in many instances, invaded the domain of art, it is worthy to note the delicate taste and extremely ingenious inventive talent displayed by the architect of this building, M. Lefuel.

The Workshop.

A Monthly Journal, devoted to Progress of the Useful Arts

EDITED BY

PROF. W. BAUMER, I. SCHNORR AND OTHERS.

VOL. I. No. 19.

THE DECORATION OF CEILINGS.

(With Illustrations from Original Drawings.)

With regard to interior decorations, there is no more grateful task that can be presented to the artist than that which is afforded by the ceiling, a plane surface which, both in relief-work and painting, is capable of the richest and most varied ornamentation, and thus becomes an integral part of the decoration of churches, halls and drawing-rooms.

Of all the interior surfaces and partitions the ceiling is that which has the least to fear from that enemy to all delicately executed decoration, the injury arising from wear and tear; but what is of still greater importance is that from its very nature it is in most cases spared all further intentional or accidental additions which may very easily give to the whole an effect contrary to that intended by the artist, and one which, so far from carrying out his original idea, may even entirely disfigure its expression. The difficulty which attends the decoration of a dwelling-room is especially increased by the absence of all consideration of the after-influence of pictures and picture frames, of the furniture and other appliances, or the general effect of the arrangement. The case is different with the ceiling, which, though not entirely separated from the rest of the furniture, and corresponding with it by a general harmony of style, still always remains to a certain degree a thing apart, the proportion and general design of which are scarcely to be injured by any extraneous influence.

The reason why the decoration of the ceiling has by no means received the same pattern-like treatment as that of the walls, is to be found in the favorable conditions just pointed out. On the side walls there is required a certain regularity and uniformity, quiet coloring and design, in order that the eye may not be fatigued, while on the other hand the upward glance, being less frequent, allows the use of more lively coloring, delicate and fanciful design and more effective modelling, and although the substitutes for a real artistic decoration, paper-hangings, carton-pierre, etc., require a careful consideration, an unquestionably good effect may still be produced by them if the great and simple principles of the true treatment of architectural and decorative features, which have always been the leading ones in all sound periods of art, be strictly adhered to.

There has been no epoch in style in which attention to ceiling decoration has not been of the greatest importance and acknowledged as one of the most worthy tasks of Ornamental Art, and in the course of centuries, the inexhaustible fancy of human genius has travelled through the whole gigantic circle of Form, from the severe Grecian ceiling to the immortal works of Michael Angelo in the Sistine Chapel, from the stalactic ceiling of the Arabian to the star-bespangled vault of ancient and modern Gothic.

Though the principal decorative features of the ceiling depend on the one hand on the style of the period and on the other on the material employed, a twofold style of execution is usually therein displayed which essentially contributes to the characteristic of a whole epoch of style. In the interior visible roof either form and expression is given to its construction, whereby the structural parts are frequently introduced as decorative elements, or both are apparently independant of each other, and the interior roof or ceiling, though never

opposed to constructive necessity, is arranged without any regard to it on purely artistic and æsthetic principles. If we desire still to adhere closely to the traditional utterance of a historical style, then indeed may we be often enticed to throw the constructive element entirely into the back-ground. The constructions of modern times are become very different from those of former epochs, and the utter failure of manifold experiments to give them a truly artistic treatment has taught us that for the present at least we lack that capacity. The continual developments and alterations, the result of advance in practical science, and the spirit of invention, now so rife, do not yet, in a state of transition into which the introduction especially of iron constructions into the art of building has led us, allow the possibility of finding a satisfactory æsthetic form in the new material and for its peculiar, structural features.

The constructive ceiling *par excellence* is the Gothic intersecting or groined vault, which by its projecting ribs is in itself the simplest and most typical decoration. It is only with great care that coloring can be added to this decoration, and the recent restorations sufficiently show the difficulties and consequences usually attending the polychromic treatment of these pointed vaults. The want of that noble rust, the venerable gray of centuries, harmonising the original scale of colors, perhaps more effective formerly, but not so well toned into accordance as they now appear, is no doubt the principle cause of so many unsuccessful restorations of Gothic decorative painting. Striking examples are the numerous recent restorations of Gothic high Altars, which, although designed and executed with much skill, show by no means the desired effect; and often are we led to attribute to a deficiency of work what in reality is merely the want of age.

In Italy during the middle ages, color was differently regarded, for there every design was made for painted decoration, the ribs being weaker, the compartments larger in order to give free scope for the rich display of color and the enhancement of gold, and to realise the marvellous effect of their brilliant harmony.

It cannot be denied that the purely mediæval motives in their limited sphere will ever hold an authorised position, and produce really good effects employed for the modern decoration of walls and ceilings. Especially in the case of pure surface ornamentation, where the effect is produced only by outline, and every attempt to give the appearance of relief by the distribution of light and shade is avoided, the beautifully conventionalised foliage will be applied with great effect to elegant scroll borders and flowers. The easy multiplication of such ornament by stencilling, renders them more suitable for practical use in the modern decorative painting, where however it ought for the most part to be restricted to decided colors, inasmuch as its effect is greatly enhanced by bold and graceful outlines.

In direct contrast with all this, is the ceiling of the Grecian Temple, being constructive throughout, as is likewise the whole style. It was not until the later Roman Architecture that the Antique lost its absolute reliance on construction and that the coffered ceiling appears which forms the leading feature of this style of decoration in the time of the Renaissance. It was Roman Architecture which first produced that sham-constructiveness to which modern times have closely adhered, elaborating the vaulting with fanciful variety of form. Those gigantic works, the great Baths and the Pantheon are its creations, and their lofty and arched ceilings are covered with the most charming and elegant ornaments in stucco and color. The Renaissance improved on these traditions and among their creations the ceiling decorations take a prominent rank. The forms of Grecian Art were modernised, Roman ornaments employed and during the early period many useful and graceful ideas were borrowed from Mediæval Art, and introduced with much ingenuity and spirit into the new compositions. The most excellent schools of painting in the world have contributed by their ceiling decorations to the productions of those works which delight us to the present day and are still our most illustrious models, executed according to the canon of Beauty, whose laws alone are adhered to in the midst of an unbridled freedom in all other respects. To these our eyes turn with admiration, they fill us with a sympathy which testifies how strongly our feelings are attracted and satisfied by the living utterance of an eminently artistic understanding which raises the art of painting to its authorised position, although the whole arrangement is presided over by a sound architectural spirit.

If the decoration of an Interior is to be brought to the highest perfection of pictorial and plastic art, to be executed with all the effective auxiliaries of stucco, gilding and fresco, and a due place to be assigned to the historical element, there will always be a direct connexion with the well known models of the Italian Renaissance. The most remarkable modern works of this kind, productions of the best architects, the theatres, halls, saloons, all make free use, either consciously or unconsciously and frequently without any acknowledgement, of the motives of the Italian Renaissance, simply because it is the most natural and appropriate form of expression for our modern wants and customs. Until now it has not been found possible to attribute to painting any other part in the decoration of the ceilings, than that which the great masters of the sixteenth century have assigned it.

Painting likewise limits the application of the oriental style to interior decoration, although it has just here achieved great works. The essential feature peculiar to it, uniformity in the distribution of color, which almost unavoidably compels a rich and costly application of gilding, does not harmonise with any picture, with which it would therefore be impossible to adorn a room, and

who would wish now adays to renounce such beautiful ornaments as these?

We have already mentioned as the principal motive of the Renaissance ceiling, the coffer or caisson, which has come to us from the antique with the development of the new style. Roman architecture depends more on relief than on color, the place of which is supplied by carved ornament, and though a greater plastic effect is secured thereby, it loses much in brilliancy and delicacy of finish. The arched coffered ceilings of barrel and domical vaults, the sunk panels diminishing in height in conformity with construction, show a decided progress from the original form as illustrated in the soffits, or under surfaces, of many Roman Triumphal Arches, the dome of the Pantheon, and numerous smaller monuments found amongst the ruins of ancient Rome and Pompeii.

We find already here deviations from the original rectangular and equilateral form of the sunk panels, though the former is retained in most cases as the simplest and most natural, which are marked by the framework which surrounds and divides them, and which the antique adorns usually with running patterns of frets and carvings of bead-rolls, egg and dart mouldings, and with the boldly projecting flower in the centre, a decorative element which the Renaissance especially turns to account in a thousand variations. A characteristic feature of the coffered ceiling is the constantly uniform division of the space, without any partiality for any fixed dimension or any central point of composition, the chief effect of the panelling being produced by the bold, sharply designed shadows of the sunk mouldings, and the projection of the centre flower. The materials for these ceilings are either wood, stucco, or baked clay, the first of which, as a framework suspended from the roof, is a particularly constructive element. Brunelleschi and his school construct the coffered ceiling in a still more fanciful manner than the Romans, and give it all the charms of an untiring variety.

The tunnel-vault of the Pazzi chapel is coffered in the antique style, as are many other buildings of the same period and particularly those of the High Renaissance, such as the splendid vestibule of the Farnese Palace in Rome, where it is only in the somewhat broader frieze that any trace of a freer ornamentation is to be seen, vases, honeysuckle ornament, interlaced bands, etc., being the typical decorative features. The beautiful ceiling in white and gold of St. Maria Maggiore in Rome, where the slender bands are adorned with pilaster ornament, and the coffered tunnel-vault of the Florentine Monument of Marzuppini, compartments of which are represented in fig. 1, where the surrounding framework is left plain, with small knobs or flowers at the intersections, are good examples of an emancipation from the traditional antique style.

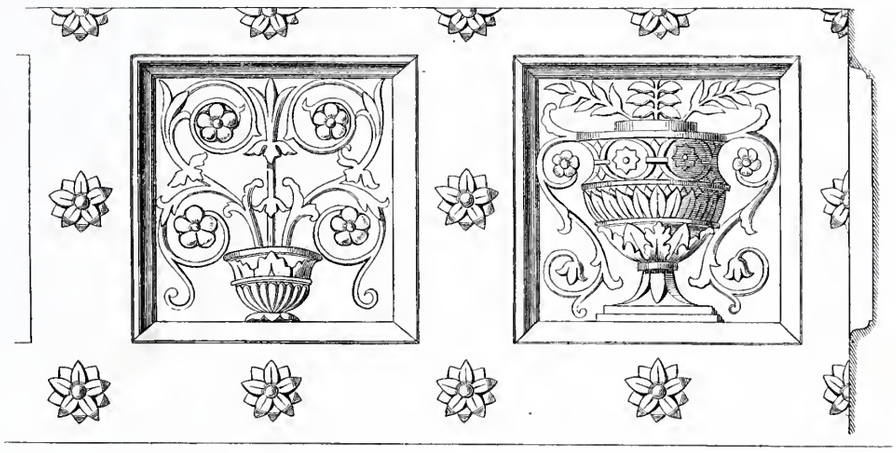


Fig. 1.

Ceiling Compartments of the Monument of Marzuppini, Florence.

The school of the Robbia most happily transferred at last this decoration to a new material, to which a great part of the most successfully executed semicircular and domical vaults and tabernacles owe their most exquisite ornamentation. The Dome of Pistoja, e. g., shows an arrangement of yellow rosettes on a blue ground, some tabernacles with sunk perspective carving having the same motive, while on the other hand the coffered ceiling has suggested the decoration of cupolas with angel figures on a blue ground. Here too there is a marked change in the mouldings, which are composed of the most varied members. The egg and dart ornament, carved leaves and pearls, dentils etc., are combined in pleasing succession with rows of consoles; and flowers composed of two, three, etc., or more layers of leaves, but always in uneven division, fill up the centre panel with a greater or less degree of richness, or are replaced by symmetrical ornaments of the most varied kinds, combined with Dolphins, Masks etc.

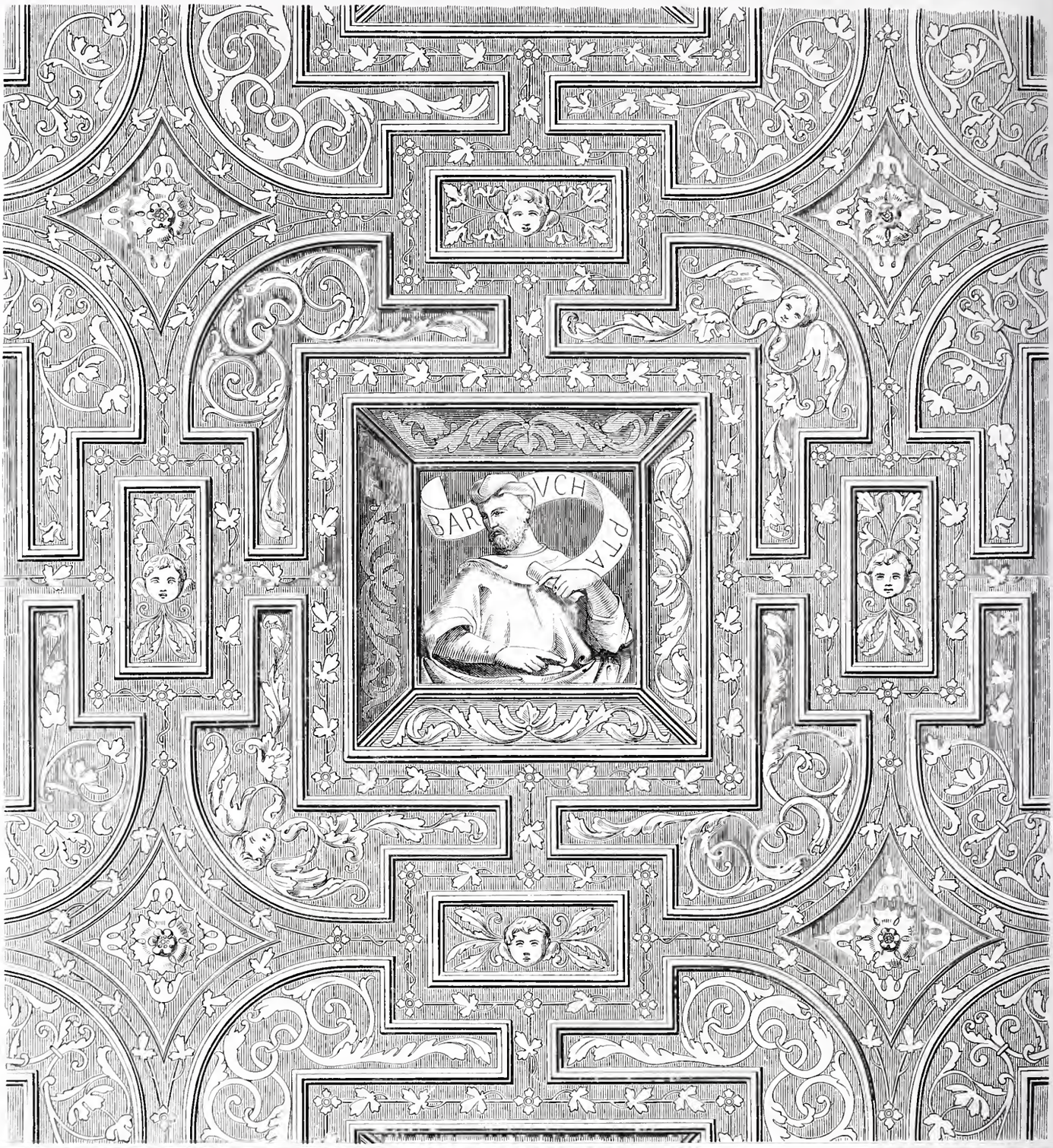
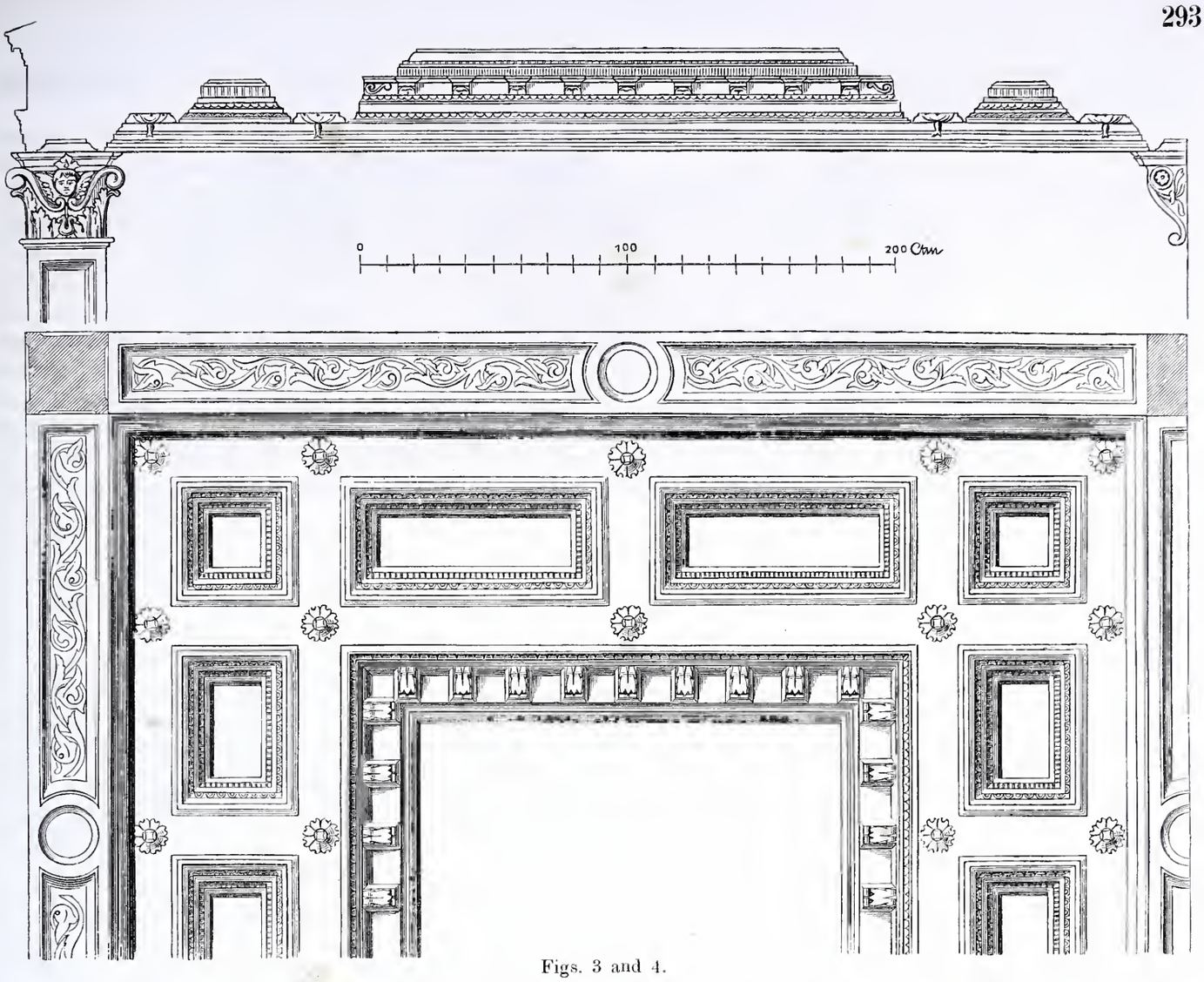


Fig. 2.

Ceiling of the Church Sta. Maria de' Miracoli, Venice.



Figs. 3 and 4.

Compartment of Ceiling under the Gallery of the Church Sta. Maria de' Miracoli, Venice.

A judicious application and distribution of color or gilding are very successful auxiliaries for marking the sharply designed outline and hinder all indistinctness, even for a distant spectator. So in the ceiling of the church of San Marco in Rome, the ground is dark blue, the flowers in gold, the mouldings gray, to which the arms of the Papacy, a lion with a golden wreath, are applied. So too the panels of the flat ceiling of S. Benedetto in Ferrara are painted gray on blue ground. Deviations from the form of square panels in rows are not unfrequently seen on the flat roofs of secular buildings, and among these one of the most beautiful is that in the chambers of the ducal palace in Mantua, showing oblique rows of square stucco panels, which contain gilt monograms on a blue ground. In the same palace may also be seen on the ceiling of the cabinet of Isabella d'Este a charming combination of circular and octagonal compartments, intersecting each other and presenting spaces most suitable for the reception of a rich ornament of gold on blue ground which is very tastefully arranged, springing up from candelabra and scroll-work. Throughout the whole of Italy the colors most frequently to be met with in the polychromic treatment of such decorative parts are blue and gold; in the compartments of the Venetian ceilings, otherwise considerably modified, they are again preserved, nor indeed can a happier combination be easily found. In the less lofty chambers of Venetian buildings the mouldings of the compartments are, with a nice discrimination, made less salient, avoiding by this means the common fault of many modern architects, whose ceiling decorations are often too heavy for the proportion and other ornamentation of the whole interior space.

The above named intersections of different forms or figures of compartments only form the transition to a further complication of arrangement which by its frequent repetition on one and the same vault or ceiling over large spaces produces a symmetrical and regular appearance. Here also Italian art offers many excellent models, e. g., the Corridor of the Sacristy of S. Spirito at Florence, where circular panels are inscribed within square compartments, and joined together by transverse ribs, the four resulting spandrels being appropriately filled in with figures and ornament in relief. * The

* See Part 2.

contours, though rather flat in detail, show with wonderful clearness and precision on the gray ground, notwithstanding the reigning dimness owing to the exquisite treatment and bold projection of the masses.

Quite different to the composition just alluded to is the ceiling of the church Sta. Maria de' Miracoli in Venice, (fig. 2). The arched wooden roof, an imperfect semi-circle in form, contains five compartments in breadth and ten in length, the central panels of which display representations of the Prophets in oil, from the pencil of Pennacchi. Ribs gilt in the same manner as the flowers, and a red border ornament of running leaves on a brown ground accompany the chief lines of the compartments. The panels show an ornament of gray in gray on a dark colored ground, which is not of the best taste. But although the whole ceiling is deeply darkened it gives in its entirety an impression of perfect harmony. The constructive arrangement is also in a certain sense marked, the compartments consisting of panelling and a wooden framework joined to one another. Thus the motive of the panelled ceiling is honestly and truly expressed, and a greater lightness given to the composition than would have been possible if it had been executed in stucco.

The ceiling of the choir of the same church shows three large rectangular compartments, corresponding to the two supporting marble-pillars, the central one containing paintings in oil, which compartments are again subdivided into smaller sunk panels by richly gilt mouldings (fig. 3 and 4).

Such an arrangement as we have just enlarged upon shows the natural transition from the coffered roof to that free style of composition which embraces the whole surface of the flat ceiling in its entirety, dividing it into compartments and panels of rich and truly pleasing effect to the eye. If paintings are to be applied to this kind of decoration such panelling is necessary for their display and leads to an arrangement of square surfaces with rounded or broken corners, circles, ellipses and other complicated forms, enclosed by richly gilt and carved mouldings, and relieved by festoons, flowers, foliage and other devices. A bold cornice, with a deeply cut hollow, and row of consoles forms frequently the border and transition from wall to ceiling. Works of this kind, dispositions as in the state rooms of the ducal palace, the ceiling of the Badia and the Vecchio palace in Florence, and many others, belong to a later period of the Renaissance. In the early Rococo period the lines are distorted, the mouldings overcharged with scroll-work, while an entirely arbitrary arrangement of panelling usurps the place of an architectural treatment. Impossible figures in stucco, often scarcely adhering to the surface, overload the space; and yet even the style Louis XIV, which was not over successful in ceiling decorations, can exhibit some nobly conceived works of this kind.

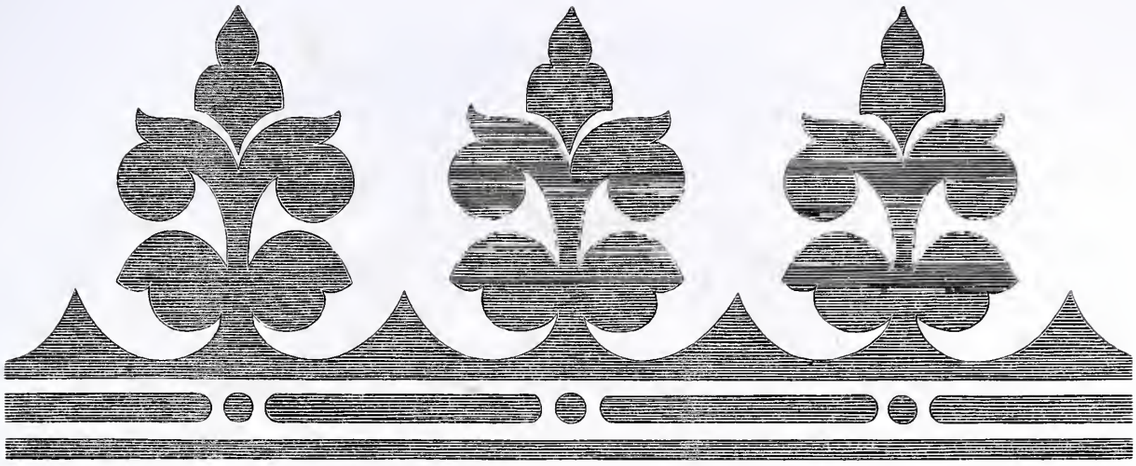
(The conclusion in our next.)

Specimens of Ornamentation.

No. 1.

No. 2.

Nos. 1 and 2. Square Panel Ornaments.



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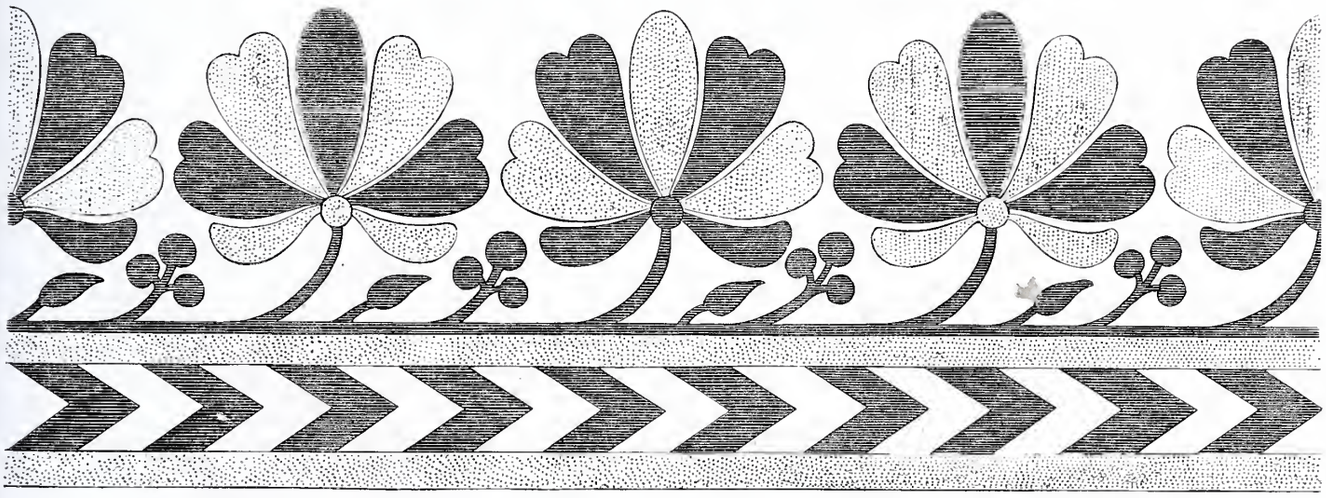

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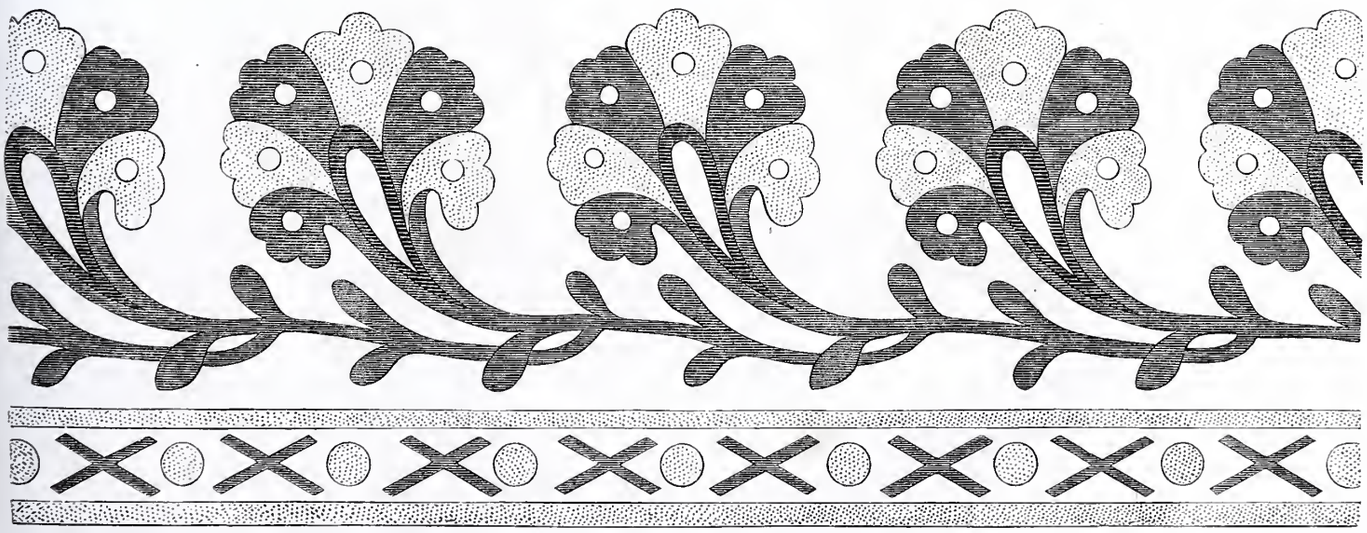
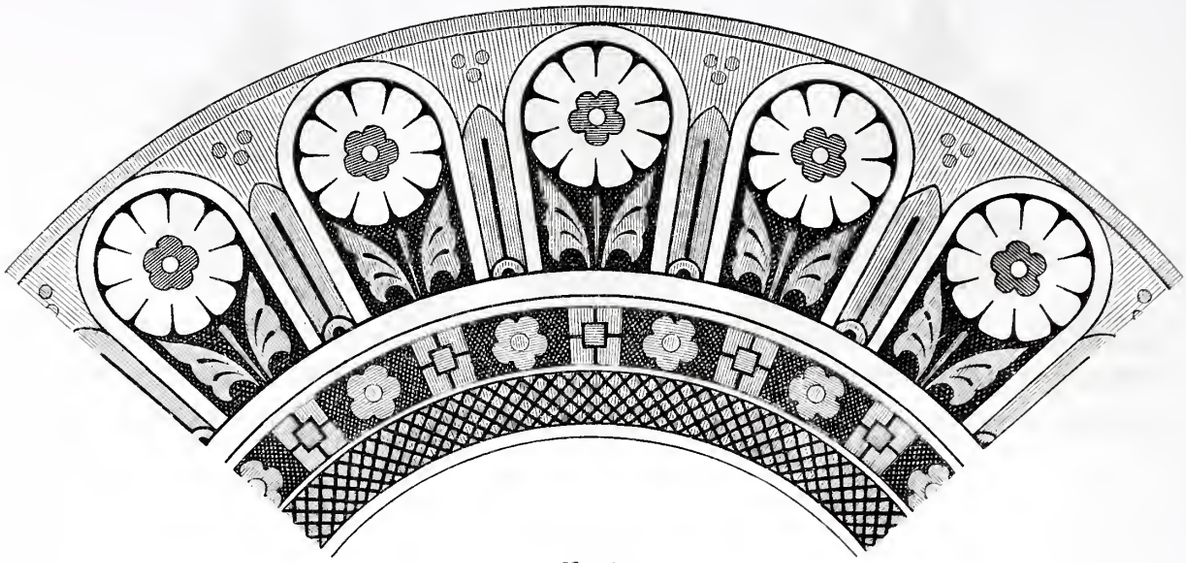


No. 5.

Nos. 3—5. Painted Decoration of the Viceroy of Egypt's railway carriage, designed by Sir Matthew Digby Wyatt, Archt., London; executed in black and gold on white ground.



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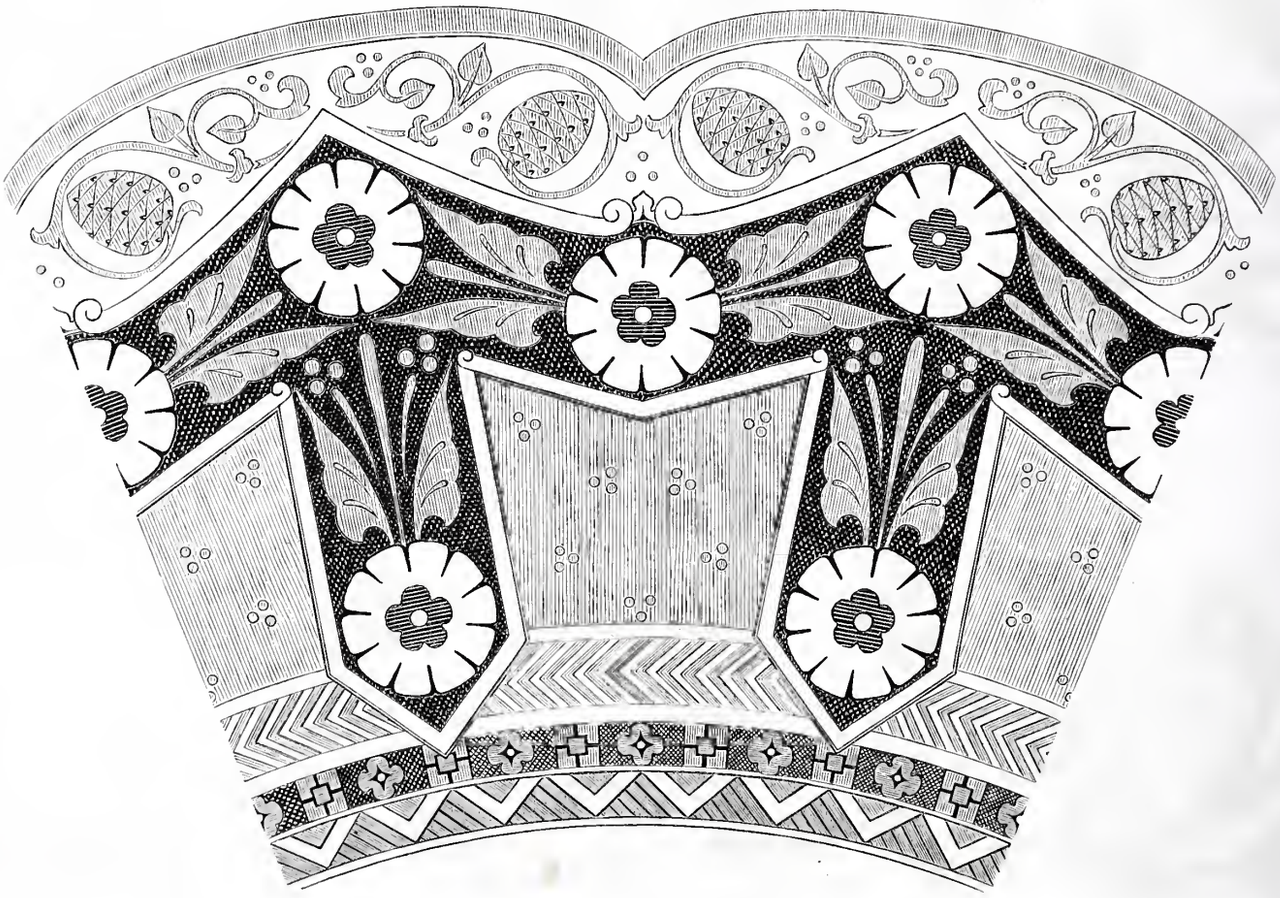


No. 7.

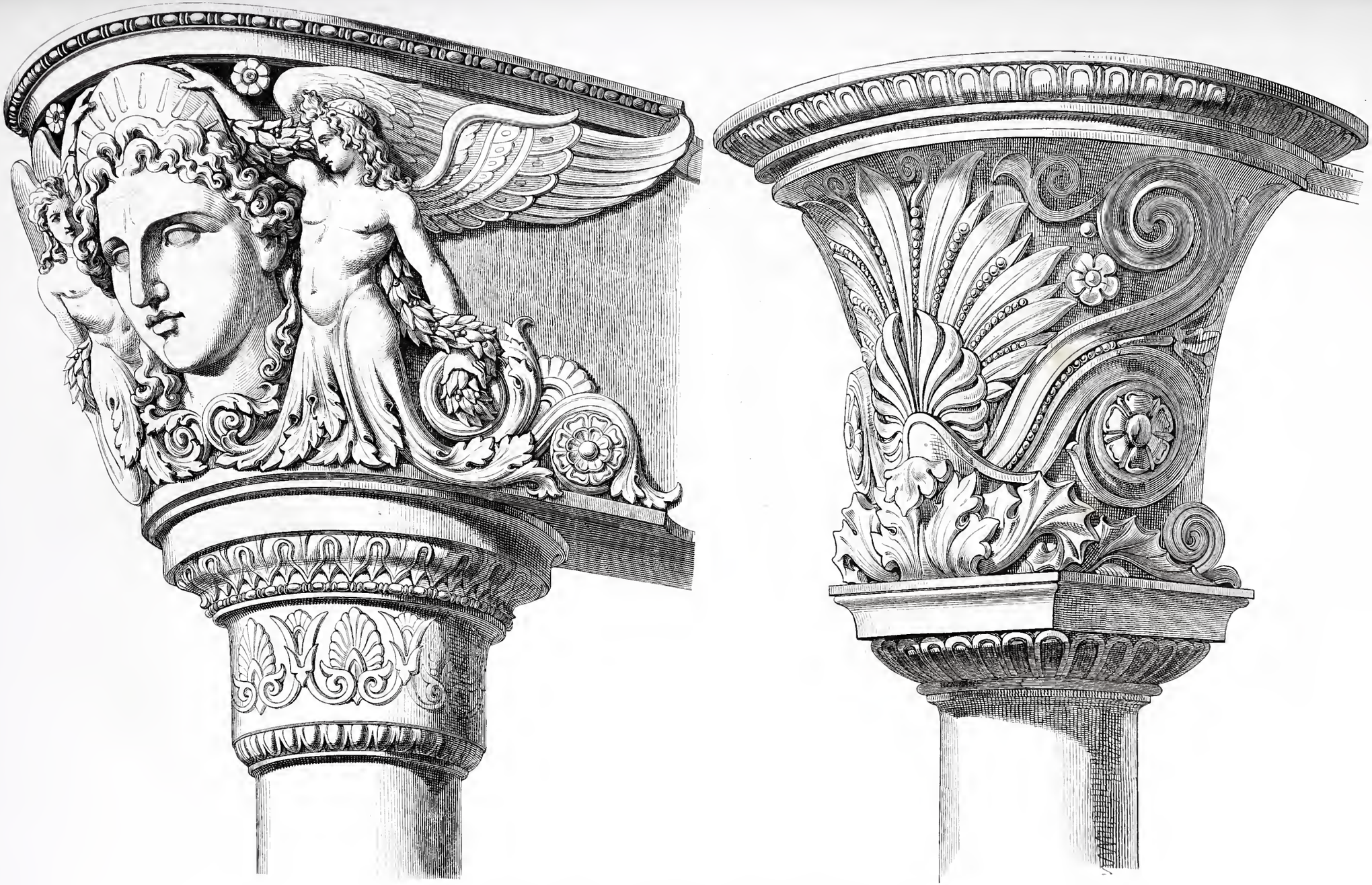
Nos. 6 and 7. Decoration of a Flower Vase (see No. 8).

No. 6 Detail of Base, No. 7 Detail of Neck, showing white flowers with red centres, green leaves on green quarry ground, alternating with buff compartments.

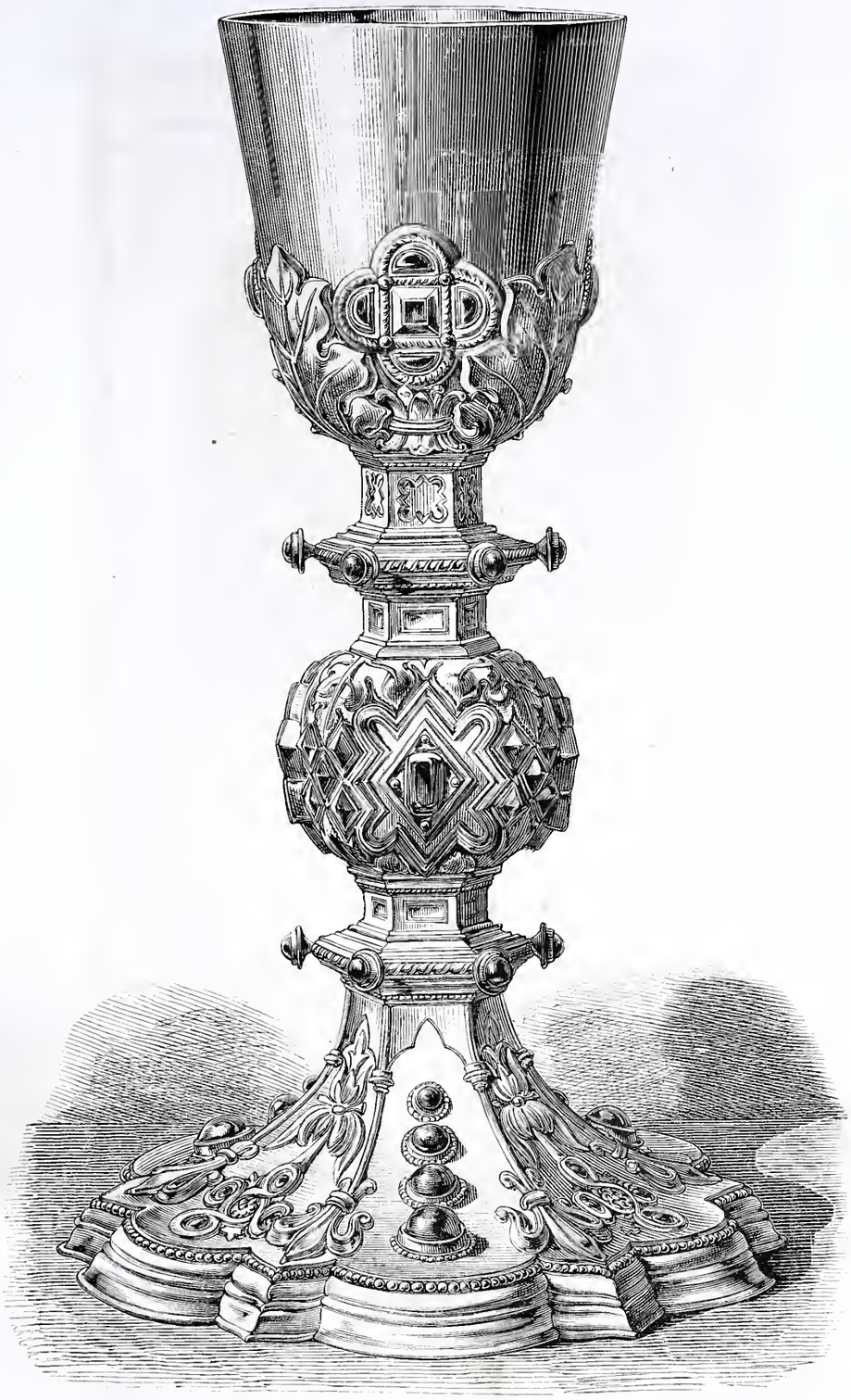
For full size drawings of other ornamental details, ground-plan and section of Vase see Nos. 3—5 of Supplement.

No. 8.

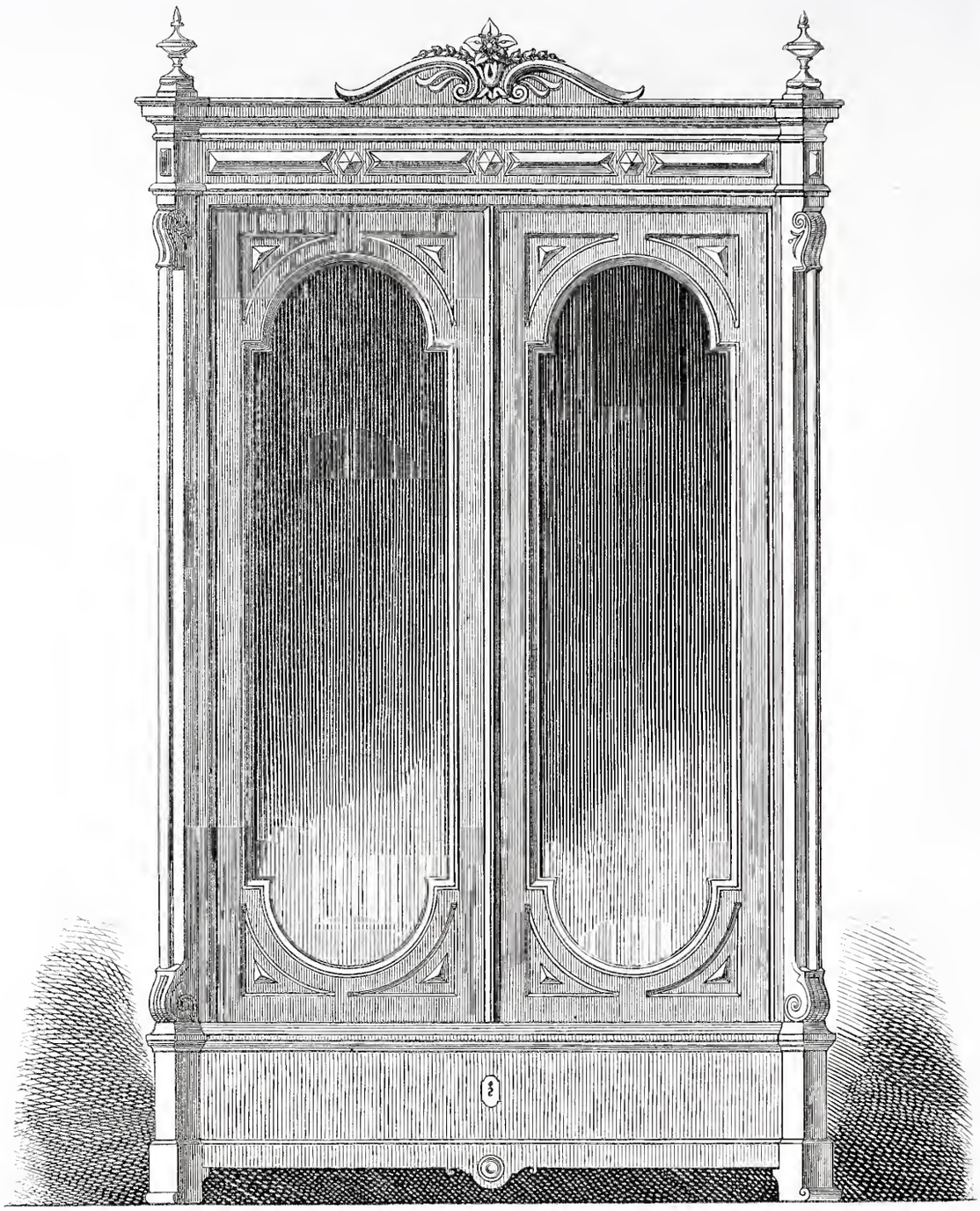
No. 8. Porcelain Flower-Vase with engraved ornament, executed for the Paris exhibition by M. Deck, Paris-Vaugirard, from the designs of M. E. Reiber, Paris.

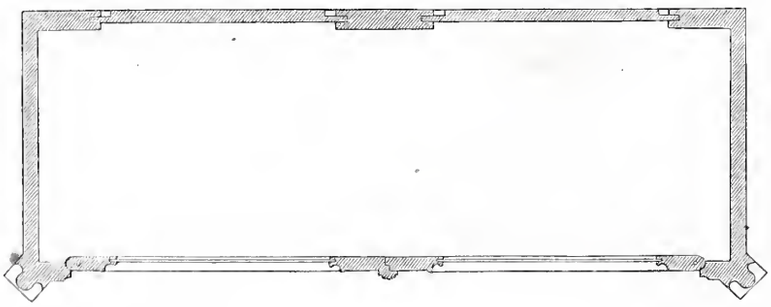


Nos. 9 and 10. Designs for the Head of a Harp.
By the late Professor Cockerell, R. A., executed in carved wood, enamelled and gilt.
For the decoration of upper rail or beam of harp see No. 1 of Supplement.



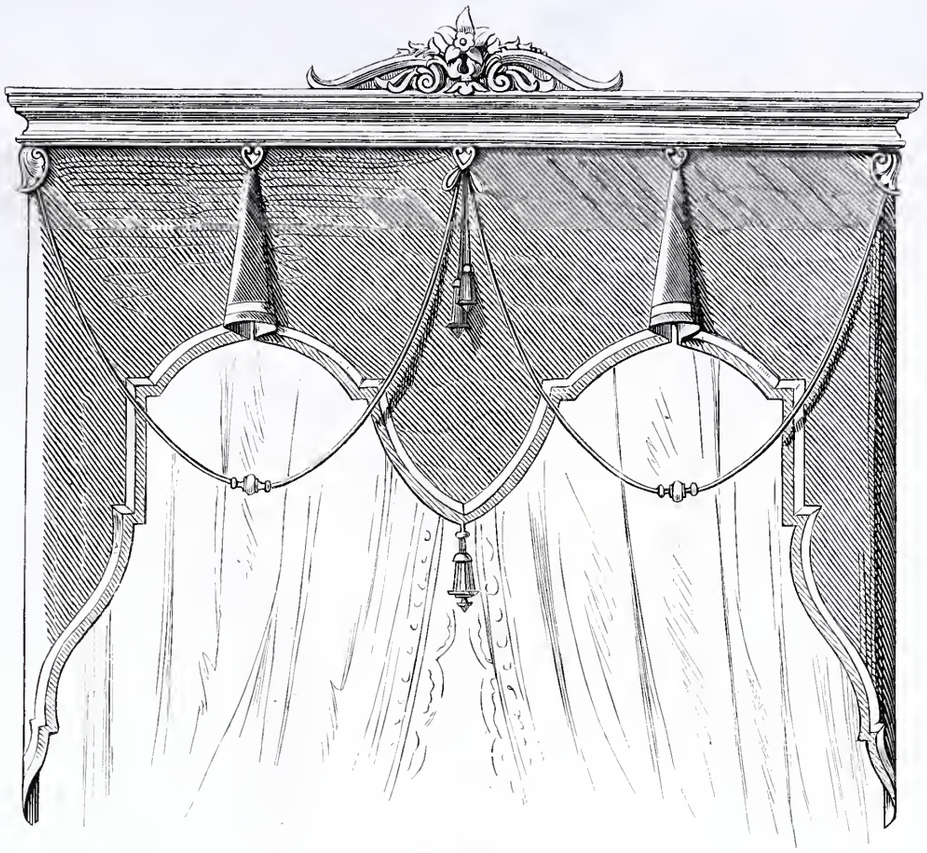
No. 11. Rich Cup, presented to Pope Pius IX by the city of Rome in honor of the 50th anniversary of his ordination. Executed by Aug. Castellani in Rome, from the designs of Michelangelo Caetani.



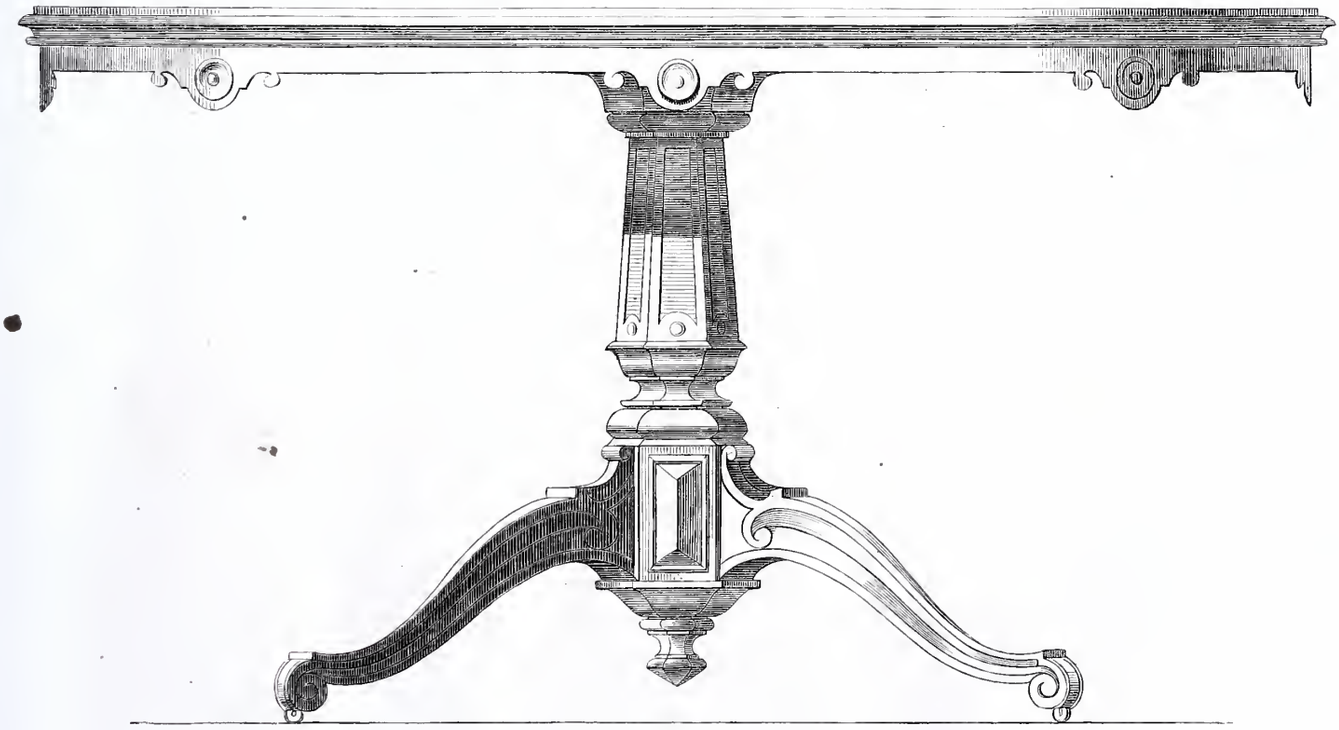


Nos. 12 and 13. Wardrobe belonging to the set of furniture illustrated in Nos. 15—17 of Part 18.

For details see Nos. 8 and 9 of Supplement.



No. 14.

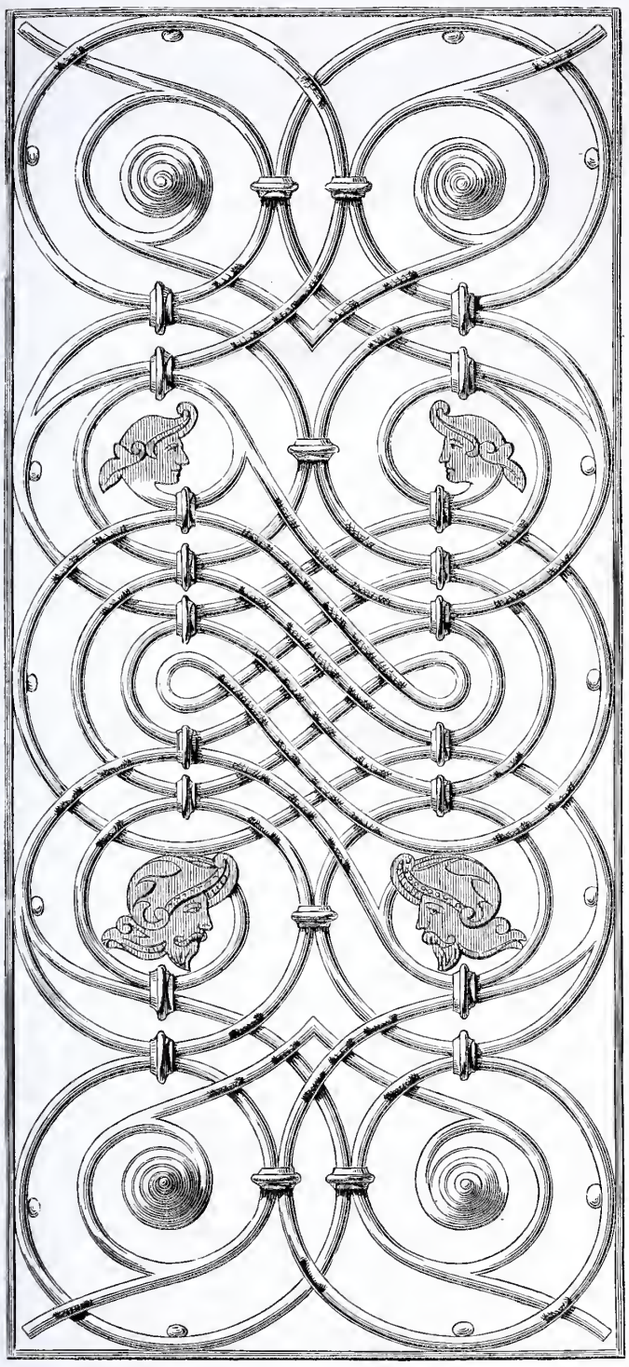


No. 15.

Nos. 14 and 15. Curtain Gallery with Drapery, and Oval Table, belonging to the same set of furniture as Nos. 12 and 13.

For details see Nos. 6 and 7 of Supplement.

Nos. 16—20. Silver Knives and Spoons;
Partly embossed, partly engraved and enamelled. Gilding of the flat ornament on oxydised silver very effective.



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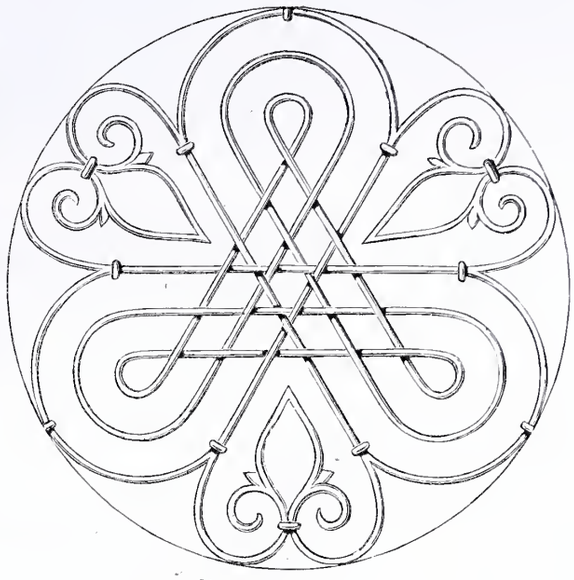

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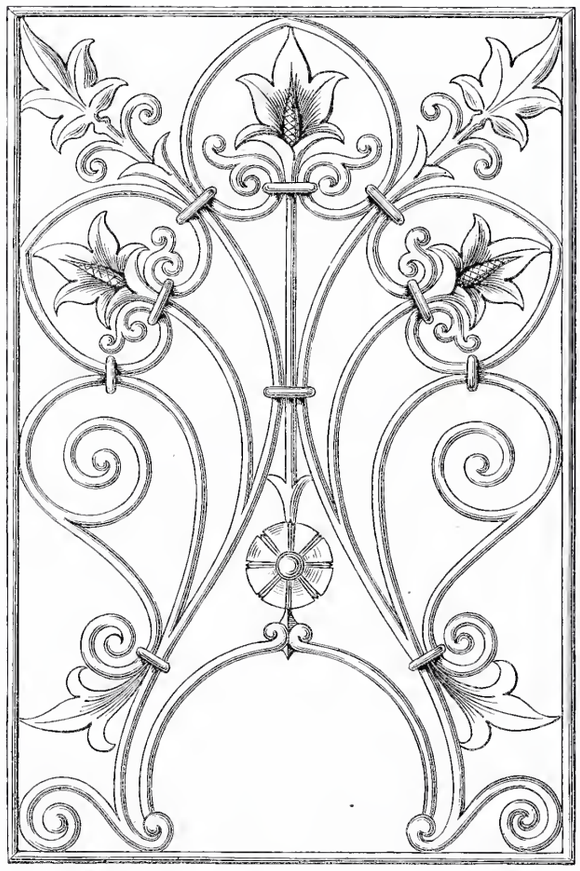
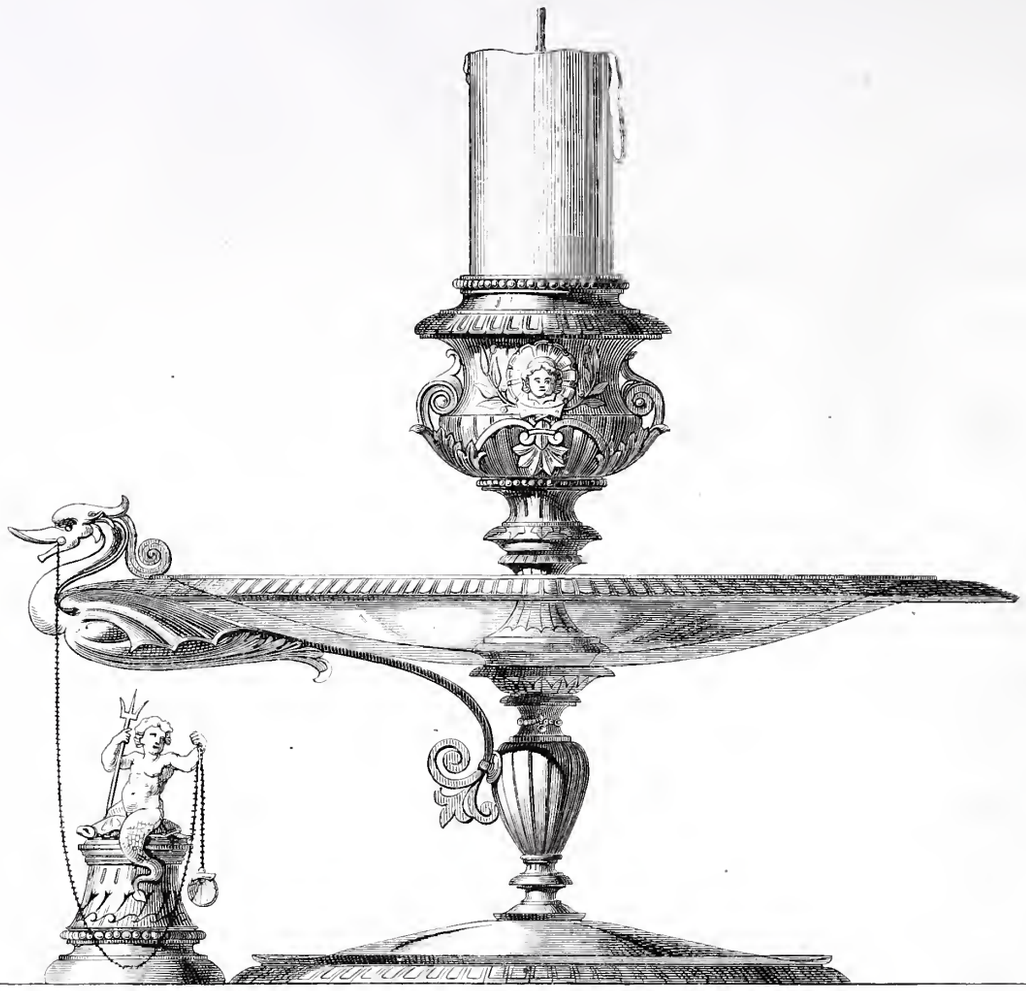


No. 23.

No. 21. Wrought-Iron Grille from the Parsonage of St. Dionysius Church, Esslingen, Germany; 17th century work. Executed in round-iron, 1½ cm. thick; the heads cut and engraved from sheet-iron.

Nos. 22 and 23. Wrought-Iron Work;
No. 22 from Door of St. Salvator, Prague; No. 23 from Arch of Railway Bridge at Mannheim.
For details see No. 2 of Supplement.



No. 24.

No. 24. Silver Bed-room Candlestick with Crystal Salver. Real size. Mr. Durm, Archt., Carlsruhe.

VARIOUS.

To Cleanse Brass.

Rub some bichromate of potassa fine, pour over it about twice the bulk sulphuric acid, and mix this with an equal quantity of water. The dirtiest brass is cleaned in a trice. Wash immediately in plenty of water, wipe it, rub perfectly dry, and polish with powdered rotten-stone.

Toilet Flower-Vases.

The season of flowers is at hand, and Art-manufacturers have prepared various novelties for their reception in town and city houses. Our attention has been directed to several issues of the Works at Worcester — the Royal Porcelain Works, the Art-director of which, Mr. R. W. Binns, has certainly effected more improvements in British porcelain than any other artist of his time. These elegant and graceful vases are of very varied forms. The hand holding a cup has been some time known; it has been subjected to changes. A dove bearing a vase is exceedingly attractive, and is sure to be popular. The three in one occurs in several forms, being in use chiefly for violets; another is a group, a smaller vase "overlooked" by two large and taper holders, for a bunch and single flowers; another consists of seven stems, each of which is destined to hold a rose; in another eagle's claws bear up the vase; another represents a horn supported by goat's feet, a bird at the point: another is a sort of plate of refined character on a tripod, the indentation in the centre containing the water for the flowers. We have named a few of the ingenuous "novelties" that court acceptance at the coming season; they meet all tastes, and have, each, some special recommendation. The firm at Worcester has obviously made great efforts to obtain pre-eminence in this particular class of Art-produce; though comparative trifles, they are home essentials. It is, therefore, of the highest importance that they should be good in design and execution: and they are so.

Flooring Tiles and Slabs made from Slate Refuse.

The immense accumulation of refuse in the slate quarries has induced M. Sebille to convert it into paving tiles and other useful articles. The slate, with a certain proportion of river sand and pitch, all reduced to powder, is heated by steam, then poured into moulds of the form required, and then subjected to hydraulic pressure. The tiles or slabs are then cooled in water, and the upper surfaces ground smooth if required. The density of these slate tiles varies between 2.2, and 2.5, they are not readily affected by acid or alcaline solutions, and will bear a temperature of about 160° Fah. without injury. The process is said to be cheap, and the artificial stones produced are harder than the slate from which they are made. *Scientific American.*

The Workshop.

A Monthly Journal, devoted to Progress of the Useful Arts

EDITED BY

PROF. W. BAUMER, I. SCHNORR AND OTHERS.

VOL. I. No. 20.

THE DECORATION OF CEILINGS.*

(With Illustrations from Original Drawings.)

From relief work, of which we have been hitherto treating as one of the original and most effective means of ceiling decoration, let us now turn to coloring which claims the merit of being the chief feature of the Renaissance, through the agency of which so many eminent productions have been achieved in this department of ornamentation, which mark an era in the realm of Art.

The painter finds the arrangement of the ceiling dependant on the historical devices with which he has to decorate it, for he must make the polychromic treatment of the ornaments which constitute their framework subordinate to the harmony of their colors. That under this condition such master-works should have been produced can only be attributed to the admirable union of the two arts, Painting and Architecture, in both of which so many, if not all, the most eminent artists of the Renaissance were alike expert. At the present day how many important works are but failures through the entire absence of architectonic feeling on the part of the modern painter! Under this difficulty it is only by the energetic co-operation of two individualities that a work can be produced, emulating those which formerly sprung, as from a mould, from the conception of one single gifted man.

Also the colored Renaissance ornament exhibits its marked characteristic features. It is not mere surface ornament as understood in the East, and during the Middle Ages. Possessed of a greater degree of individuality, it is fashioned more after the antique model, it desires to produce effect by something more than outline, it gives a better development to relief and form, and never fails, at least during its best period, to charm the imagination; if shade is indicated the whole ornament stands out from a delicately tinted or white ground from which the outline rises in clearly defined character.

That the Renaissance however was quite capable of the composition of surface ornamentation is plainly proved by its marquetry, tiles, and textile patterns, than which it is impossible to conceive anything better adapted to their respective materials. The transition from the ornament proper to decorative painting has been gradually and imperceptibly effected; and the whole ancient and modern world of fable and fairy tale soon peopled the ornament of these times with grotesque figures originally treated, but whose prototypes may be traced in the decorations of the luxurious dwellings of Ancient Rome. The highest perfection was attained by Raphael in his immortal Loggie, and in his footsteps follow Giulio Romano, Giovanni da Udine, and in later times Perin del Vaga, who have produced the most exquisite and most elegant ceiling decoration, not unfrequently combined with stucco ornament.

Vaulted ceilings are mostly divided into rectangular compartments by rectilineal borders; or gently waving wreaths of fruits and flowers swing from corner to corner, thereby producing a very graceful effect. Acanthus leaves on which the artist lavishes all the brilliancy of color connect the divisions, and are again themselves effectively joined together by flowing bands and ribbons, and frequently the artist will treat some panel as a sort of bower, the vinebranches creeping gracefully over its

* See p. 289 *ante*.

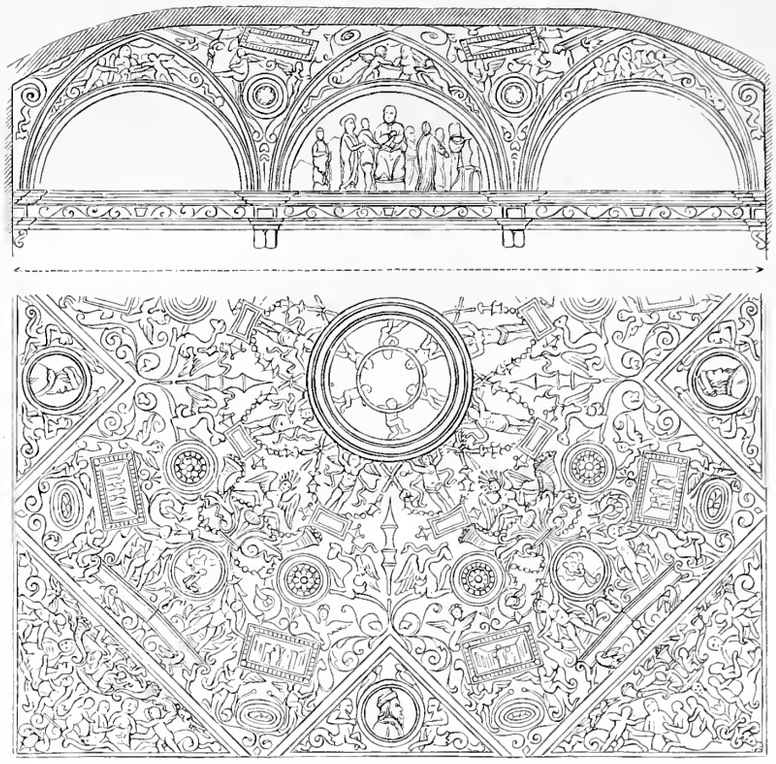


Fig. 5.

Ceiling of the Monastery S. Paolo, Parma.

wooden trelliswork, between whose leafy screen smiles forth the blue vault of heaven, while birds, panthers and animals of all kinds frequently enliven surfaces representing the earth or sky. Vinebowers of this kind are to be seen in the Palazzo Vecchio in Mantua by Giulio Romano, in the court of the Casa Taverna in Milan, and in Correggio's charming composition of Diana with genii in the cloister S. Paolo in Parma. Giovanni da Udine makes use of the same motive with great success in the spherical vaults of the Loggie of the Vatican; the ceiling appears airy and lofty, its graceful curvatures seem to rise lightly in the sky, and show how very appropriate such decoration is, to give, especially to lower spaces, the appearance of lightness and height. Later painters beginning from Giulio Romano, in following out this motive to excess, frequently strike into a wrong path altogether. The entire central panel on the flat ceiling or on the crown of the vault, is supposed to be pierced and a temple-like lantern placed over it; indeed the artists of the Rococo period go further than this, and make an architectural structure of the whole dome, as is seen for example in one executed by Pozzo in his masterly style.

The master-genius of Raphael turned this motive to excellent account in other ways. In the Stanza della Segnatura he represents the crown of the vaulted roof as open, and allows to the spectator a glance into the blue heaven on which waving figures of boys bear the Papal arms; or he decorates the domical vaults with a fan-like screen, most delicately designed, as on the semicircular niches in the bath-room of Cardinal Bibbiena. The effect is very different from that produced by modern architects, especially the French, when they attempt to decorate in the style of Louis XVI, and apply to a white ceiling a rectangular opening whose tender blue is enlivened by a few lightly waving cloudlets.

As to the form of the vault, the Renaissance makes choice of that which offers the greatest surface, the most unbounded space for the display of decorative painting. The coved ceiling was found by the Cinquecentists the most appropriate for this purpose, as forming in the penetrations of bays, etc., a natural distribution of panelling quite suitable for ornamental decoration, as containing the largest possible plane surface and offering in its resulting lunettes and spandrils place for smaller pictures.

A coved ceiling most beautifully conceived and executed, with rows of festoons all round the compartments, is to be seen in the Farnesina at Rome, and in a room of the deserted cloister of S. Paolo in Parma, the painting of which is attributed to Araldi's pencil, an idea of which is given in Figs. 5 and 6. The central picture is here wanting, the historical subjects are placed in the lunettes, the vault itself is enlivened with an abundance of fantastic figures, beadrolls, flowers and medallions with scenes from the Bible history, etc., which, partly painted in gray, partly in their natural colors, are relieved by the deep blue ground. The corner lunettes are alternately green and red, in such a manner that the same color follows the diagonal, the tablets are yellow, the bands red, while the sea monsters, Fauns, etc., are painted gray.

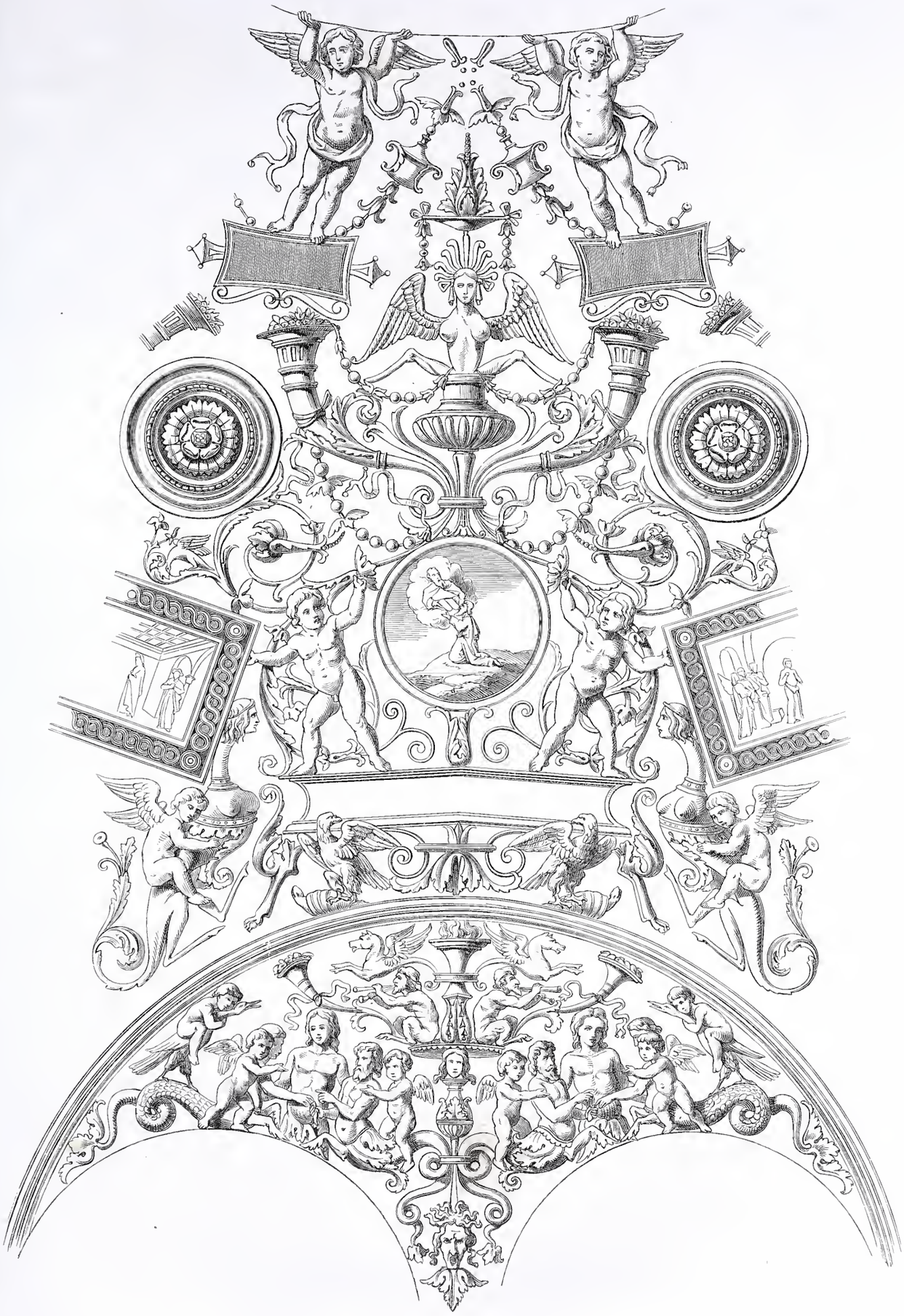


Fig. 6.

Detail of Ceiling, Fig. 5.

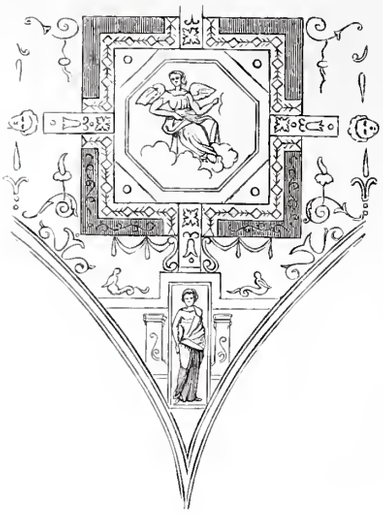


Fig. 7.

Detail of Painted Vault of a Vestibule in *Via nuova,* Genoa.

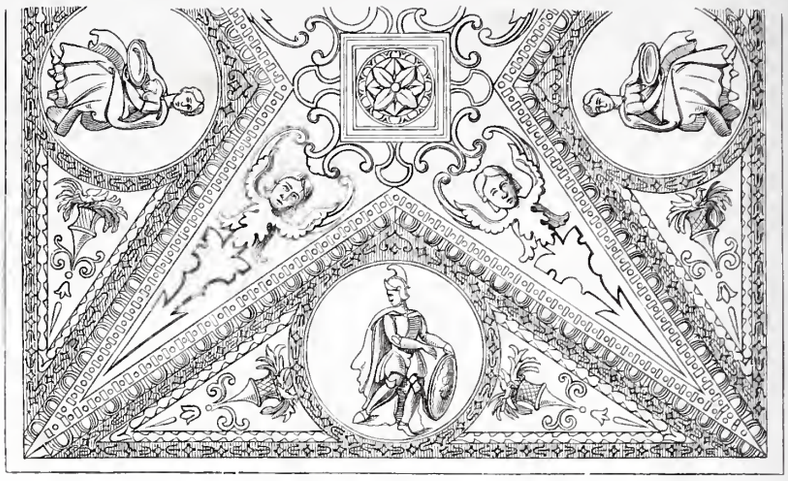


Fig. 8.

Painted Vault of Spinola Palace, Genoa.

The impression produced by the whole is somewhat gayer and less in accordance with the idea that we should now entertain of the decoration of a nunnery, but the whole composition gives eloquent testimony to the charm of an union of ecclesiastical and antique motives with an unusually successful ornamental effect. Araldi (ob. 1528), the author of this work belongs to the first period of the Renaissance, and unfortunately has bequeathed to us but few of his works.

More recent painters have gone too far in this style of composition. Diminutive architectural structures, and even landscapes have been introduced by them into the ornament, so that all organic connection of the several parts has been lost. Still the surpassing skill and rich imagination of the artists make us forget many defects, and the eye will ever find in their productions an inexhaustible source of intellectual enjoyment corresponding to their origin, which, after the chief features of the plan had been determined on, was due as to its details to artistic improvisation only. That in our modern times, when it is the architect who has to design every detail, works of this kind must suffer from a certain stiffness is sufficiently clear, for indeed no artistic work which passes through different hands can possibly be quite free from this defect.

Perin del Vaga has left us many excellent proofs of his industry in Genoa, especially in the Doria Palace. Many apartments and vestibules in the city are also the work of his pupils as, e. g., part of a coved ceiling from a vestibule in the Via Nuova a sketch of which is given in Fig. 7. A compartment of the vault of a loggia in the court of the Spinosa Palace, Via Sta. Caterina, is also decorated in a similar manner. (Fig. 8.)

Decoration in the style of the above named examples, is peculiarly adapted to the ornamentation of a long corridor or passage, as it will take away from its monotony, the eye being carried along a rich variety of pictures and figures, without being fatigued. The Uffizi Gallery in Florence offers a striking example of the excellent effect of such a composition, and for the same reason a similar treatment of long semi-circular vaulted roofs is to be recommended.

Spherical vaults also offer great opportunities for well conceived and nobly executed decorations in color. In these, when the dome is perfect, either the surface is divided into zones and separated by meridians, or as in entirely flat ceilings composed of a free distribution into panels filled with pictures, figures and other ornaments. Raphael divides the dome in the church Sta. Maria del popolo in the first mentioned manner, with mosaics; the intermediate panels are here rather small and filled up with dolphins and candelabra. The celebrated Stanza della Segnatura may serve for an example of the second style with its delicate divisions into rectangular and circular compartments whose framework, borders and panellings, are enriched with the most exquisite and suggestive ornamentation, which like the figures are of the greatest excellence. Pinturicchio's decorations also in the church of Sta. Maria del popolo are characteristic of a contemporary of Raphael and bear the impress of his genius, though perhaps the figures of the apostles with their architectonic niches in the pendentives of the choir are too severe in conception.

Of great interest is the vaulted roof of the mediæval church San Matteo in Genoa. Flat spherical calottes with elliptical centres between pointed arches form the vault of the nave, the spandrils being ornamented with gay figures of boys and genii. Very similar is the painting of another mediæval church of the Eremitani in Padua, the ornamentation of whose groined vaults is from the master hand of a Mantegna, but these examples of mediæval decorations are exceptional, nor does the Renaissance lend itself easily to the execution of such tasks.

If the dome was to be ornamented very simply a division into compartments was simulated by painting, and it is astonishing how a plastic effect is attained by these imitations. The panels are painted in the live-

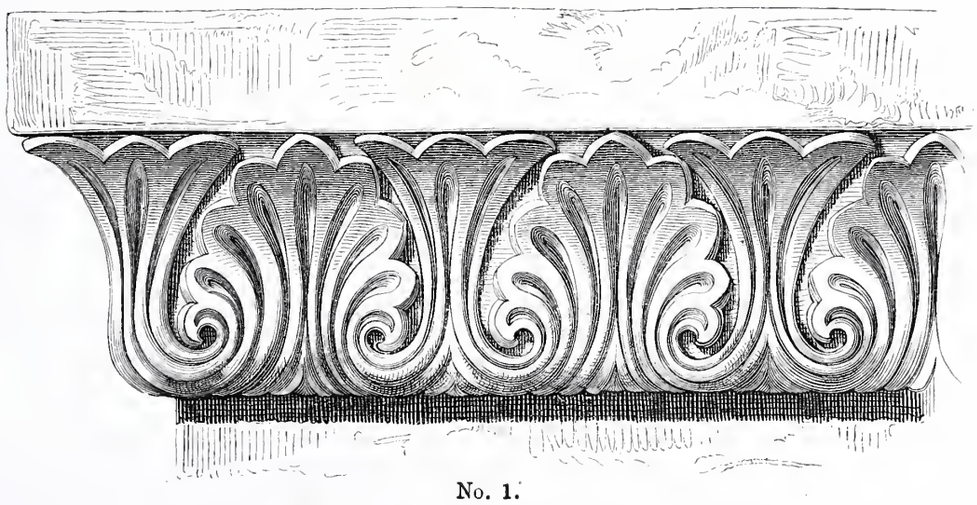
liest colors, blue, red, green, orange, etc., while the mouldings are painted grey on grey, a strongly defined shade being also constantly added.

As long as the attempt at a plastic effect on the roof by means of painting is kept within these bounds, there can be no great danger in assigning such a province to color, but it must never by any means be allowed to go too far. It is only the genius of Michael Angelo that can outstep these limits. No one but himself could with impunity treat his gigantic work, the ceiling of the Sistine Chapel, as plastic composition throughout, and therefore the common rule is never to be applied to the creations of an inimitable genius.

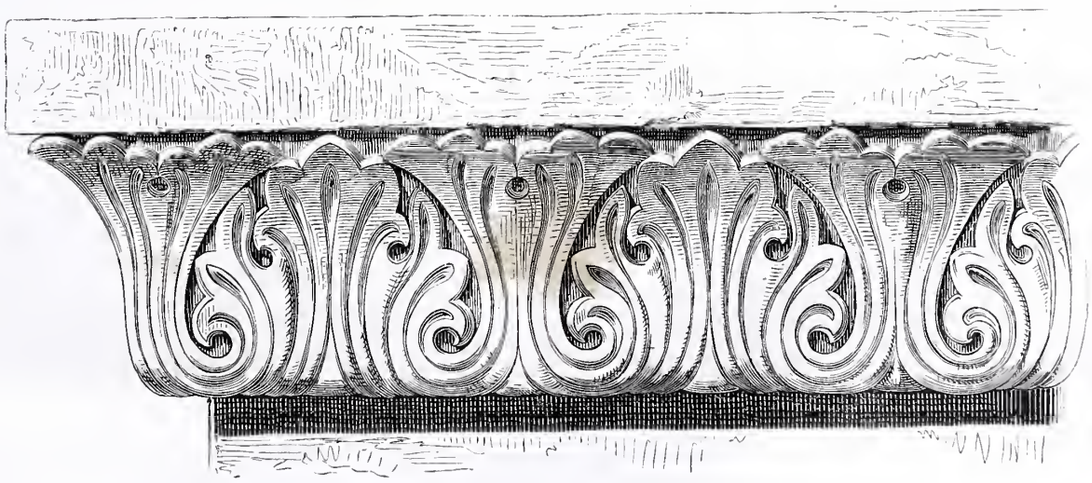
As every work of Art owes almost everything to the creative individuality of the artist who conceives and executes it, we can draw but few general principles for the decoration of ceilings from the great number of excellent models we have in this department. What is most essential is the greatest possible clearness of arrangement by the choice of light and lively color, together with strict distribution of light and shade through a careful modelling of the ornaments and figures, whose effect depends especially on the precision of their outline. Figures are best represented in ideal compositions, the attempt at perspective effect deepening or enlarging the offered space is altogether to be avoided as likely to lead to extravagance and vagary.

On the whole we find no other principles than those which apply to all surface decoration, though the treatment of the ceiling permits more freedom than other surfaces. While the walls of an interior space should always be in a certain degree subjected to vertical lines, the roof should always preserve the character of a uniformly extended or horizontal surface.

Specimens of Ornamentation.

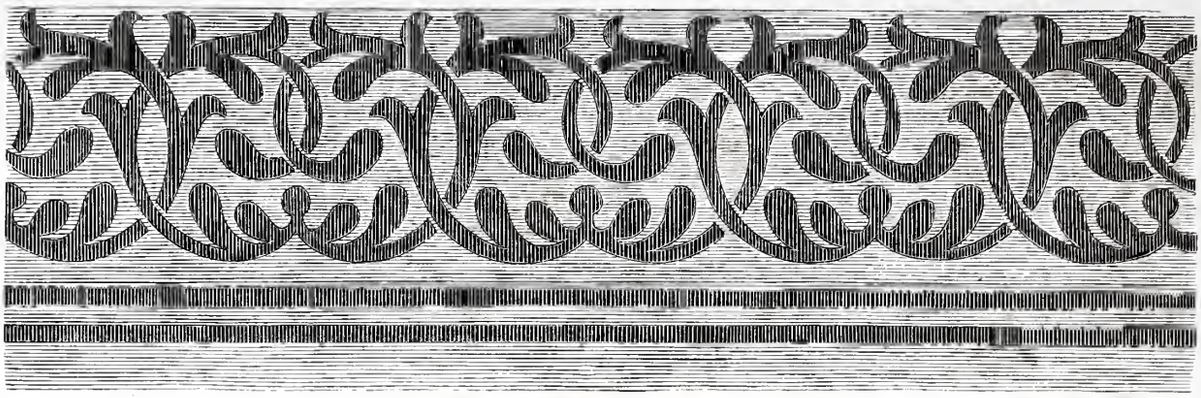


No. 1.



No. 2.

Nos. 1 and 2. Romanesque Style. Details of Imposts from St. John's Church, Niederweisel, Germany; 1/5 real size.



No. 3

No. 4.

No. 3. Renaissance Style. Border of Vestment, red on blue ground, from the Dutch Gobelins in Dresden Gallery.

No. 4. Modern Border Pattern for woolen Hangings, inter-woven with yellow silk.
Running ornament *a* brown ochre on dark blue ground; ground *f* and *g* dark chocolate; geometrical patterns *c* grey with red dots on green ground with yellow bordering lines; fret borders *b* black on yellow with light blue bordering lines; ornament *d* yellow on cobalt, ornament *e* scarlet on green ground.

No. 5

No. 6.

Nos. 5 and 6. Modern Gothic. Capitals of the *Grafensaal* of Hohenzollern Castle. Mr. Alb. Jungermann, Sculptor, Berlin. The vegetable types of the ornament are vine and common maple alternating with oak and hops.

No. 7. No. 8.

Nos. 7 and 8. Candelabra. Italian sixteenth century work.

No. 7. From Church of Sta. Maria del Popolo.

Of excellent proportions; very judicious application of the ornament; foot showing the arms of the Chigi family.

No. 8. From Church of S. Andrea delle Valle, Rome.

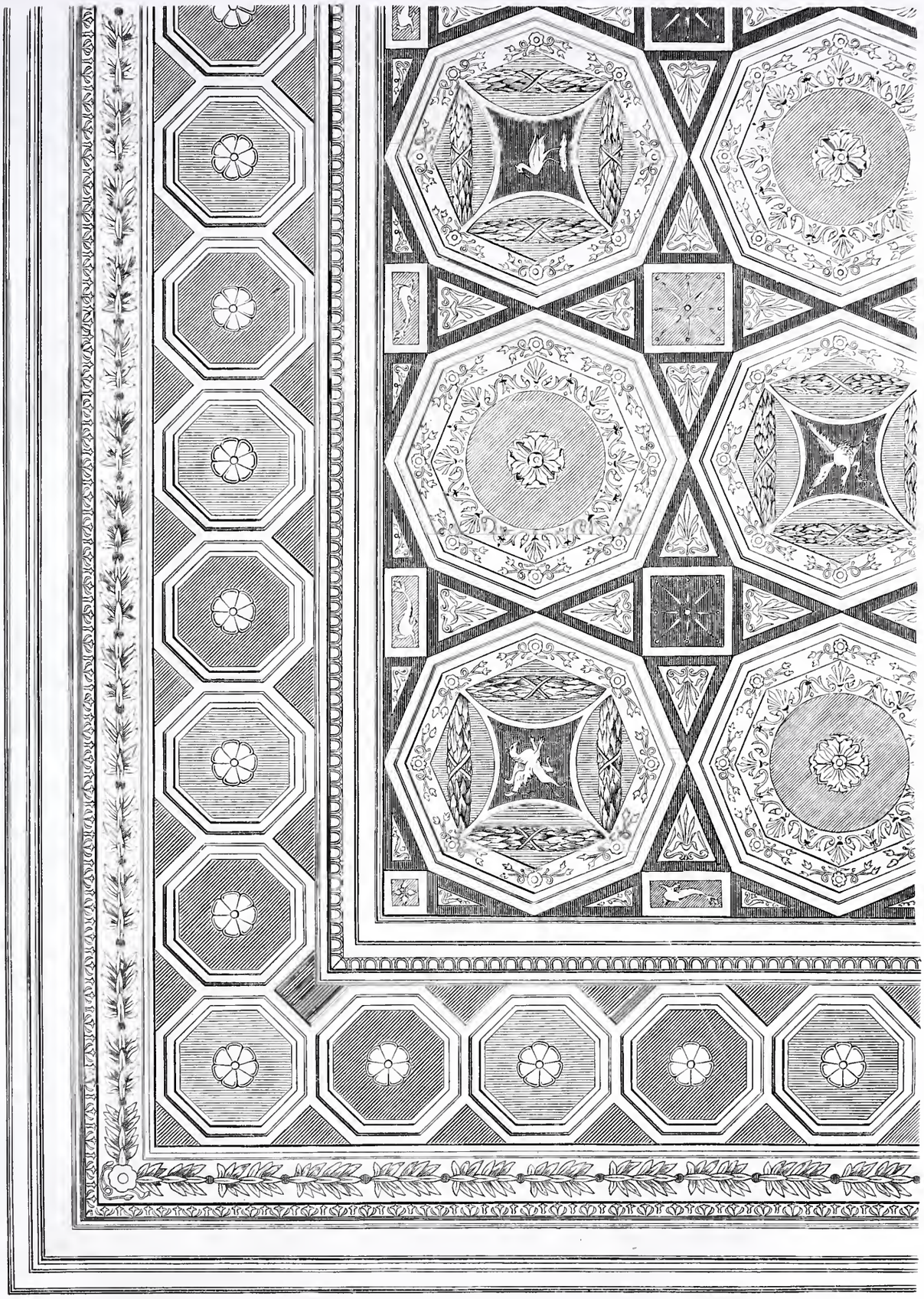
No. 9. Earthen Tankard; end of sixteenth century. Full size.

The old German inscription runs as follows:

GERHET : DV : MVS : DAPER : BLASEN :
SO : DANSSEN : DI : BAVREN : ALS : WEREN : SI : RASEN
FIS : VF : SPRICH : BASTOR :
ICH : VERDANS : DI : KAP : MIT : KOR : 1598 :

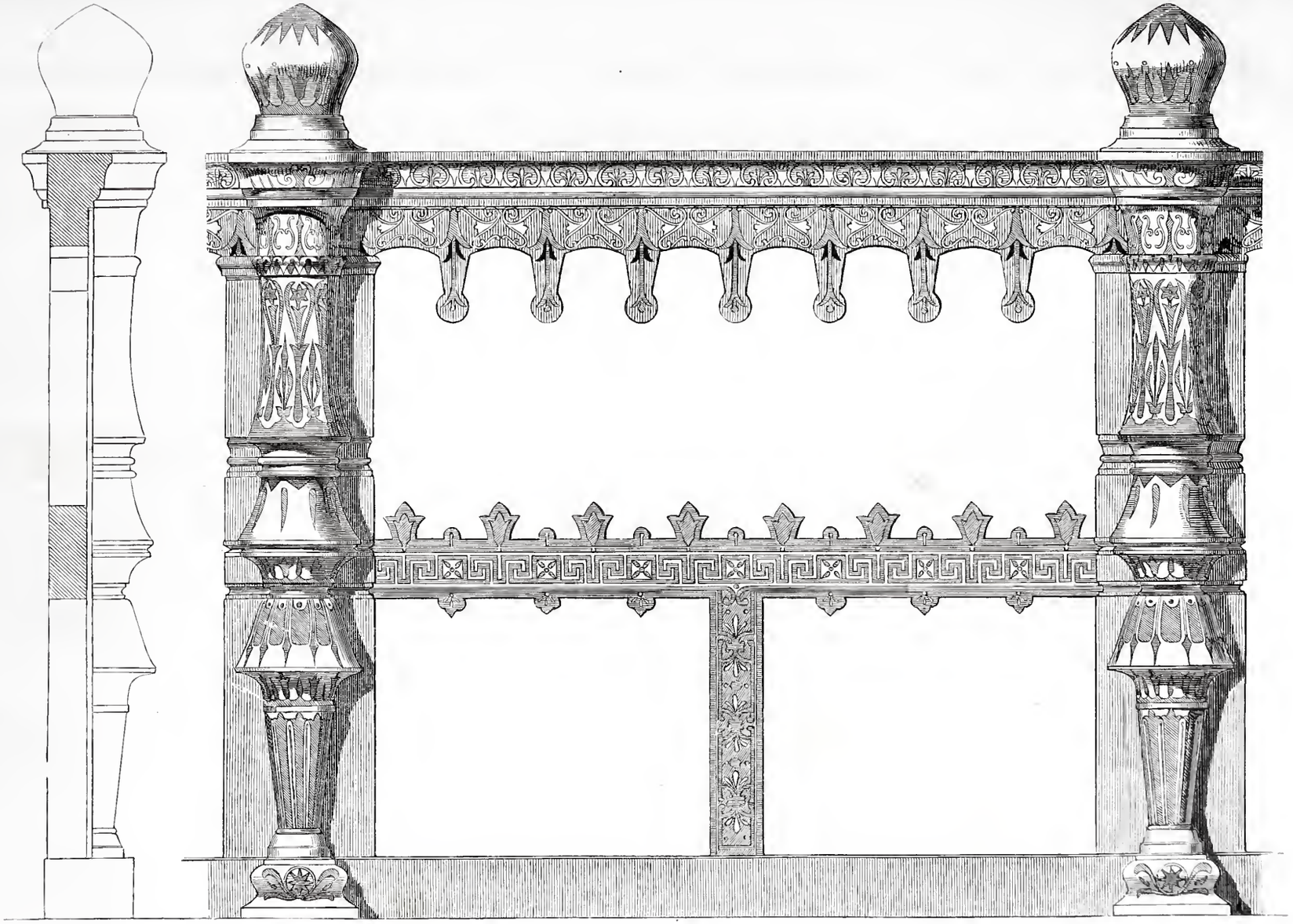
No. 10. Modern Time-piece in silver gilt. Designed for a race prize by Mr. Val. Teirich, Archt., Vienna. Enamelled dial-plate, ground of ornament blue, numbers black.

For ground-plan see No. 7 of Supplement.

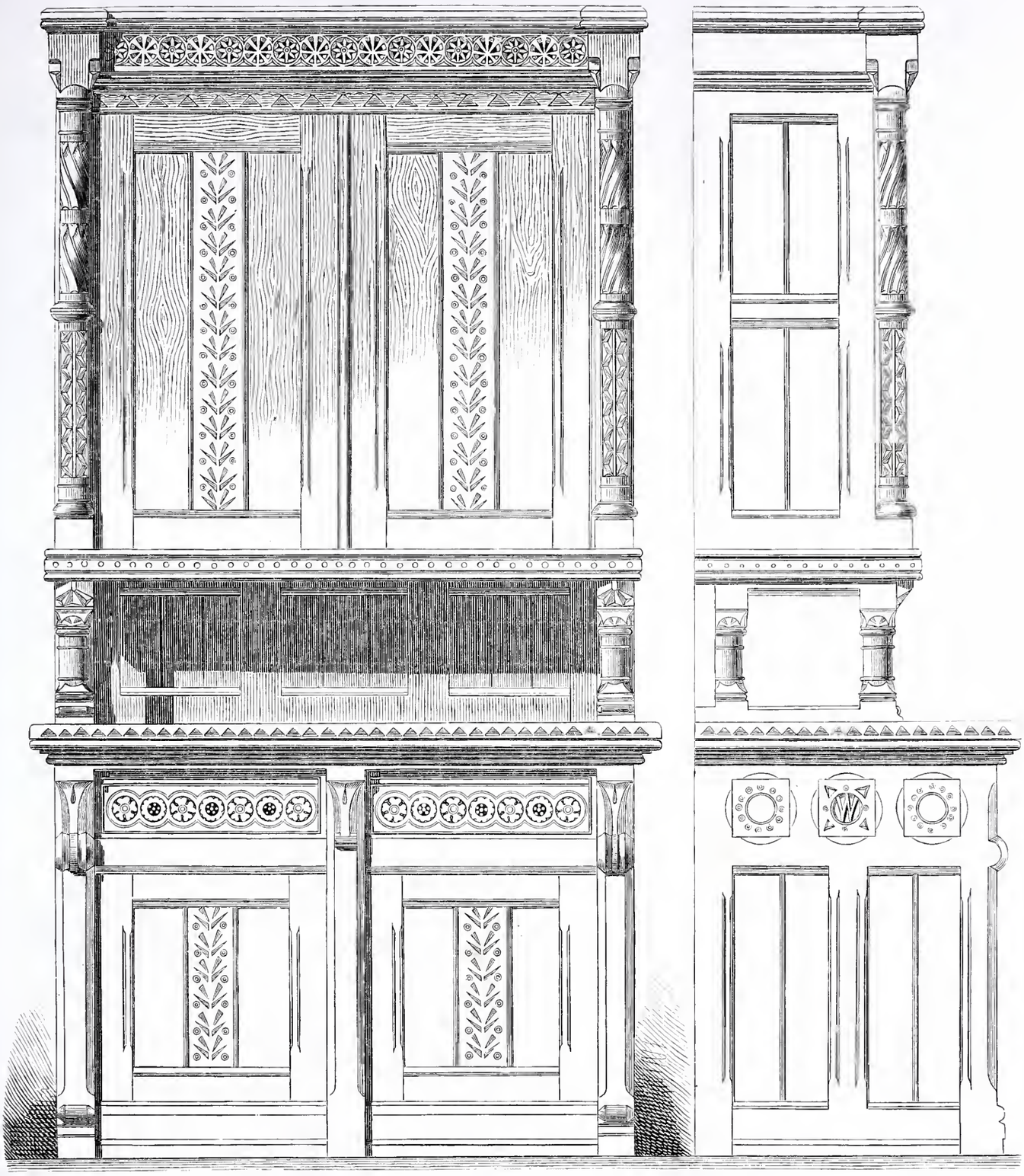


No. 11. Dining-room Ceiling in the Pompeian House of Prince Napoleon. — M. Alfred Normand, Archt., Paris. Border compartments show alternately yellow and white ground with blue triangular panels. Great centre compartment outlined with red, octagonal panels, partly red, partly yellow and partly blue, the stars being white on red ground.

For full size details see Nos. 3—6 of Supplement.

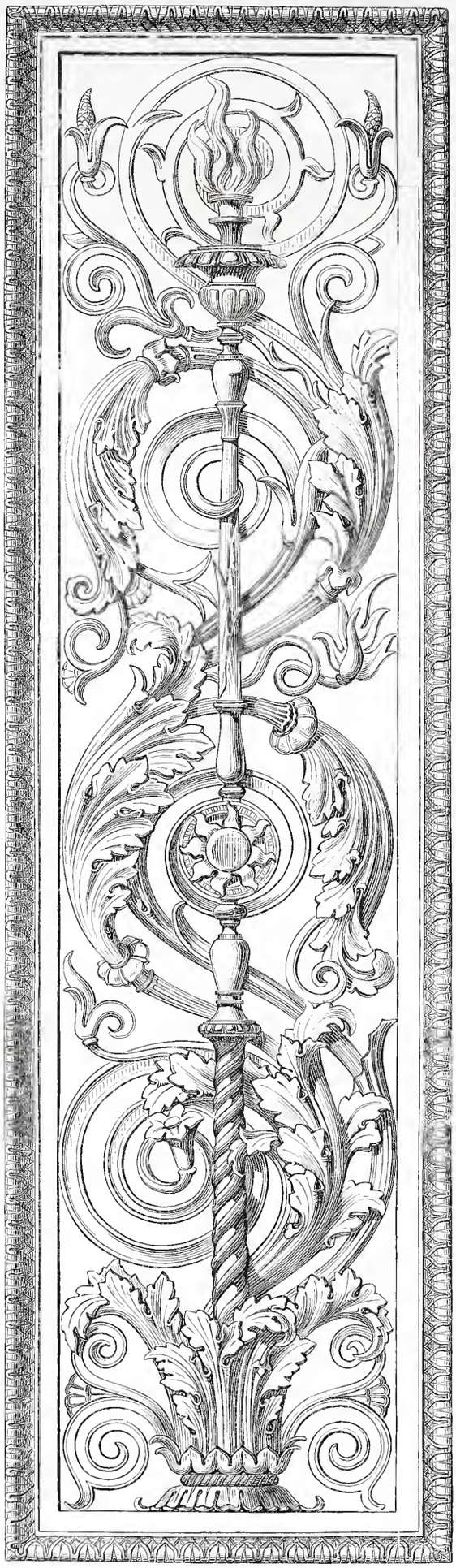


Nos. 12 and 13. Balustrade of Gallery in the Library of Prince Napoleon's Pompeian House. — M. Alfred Normand, Archt., Paris.
Ornament red and white on green ground; small gilt flowers relieving the fret.
For full size details see No. 1 of Supplement.



Nos. 14 and 15. Design for an Oak Buffet. Front and side elevation. — Mr. Alfred Waterhouse, Archt., London.
Details Nos. 8 and 9 of Supplement.

No. 17.



No. 16.

No. 18.

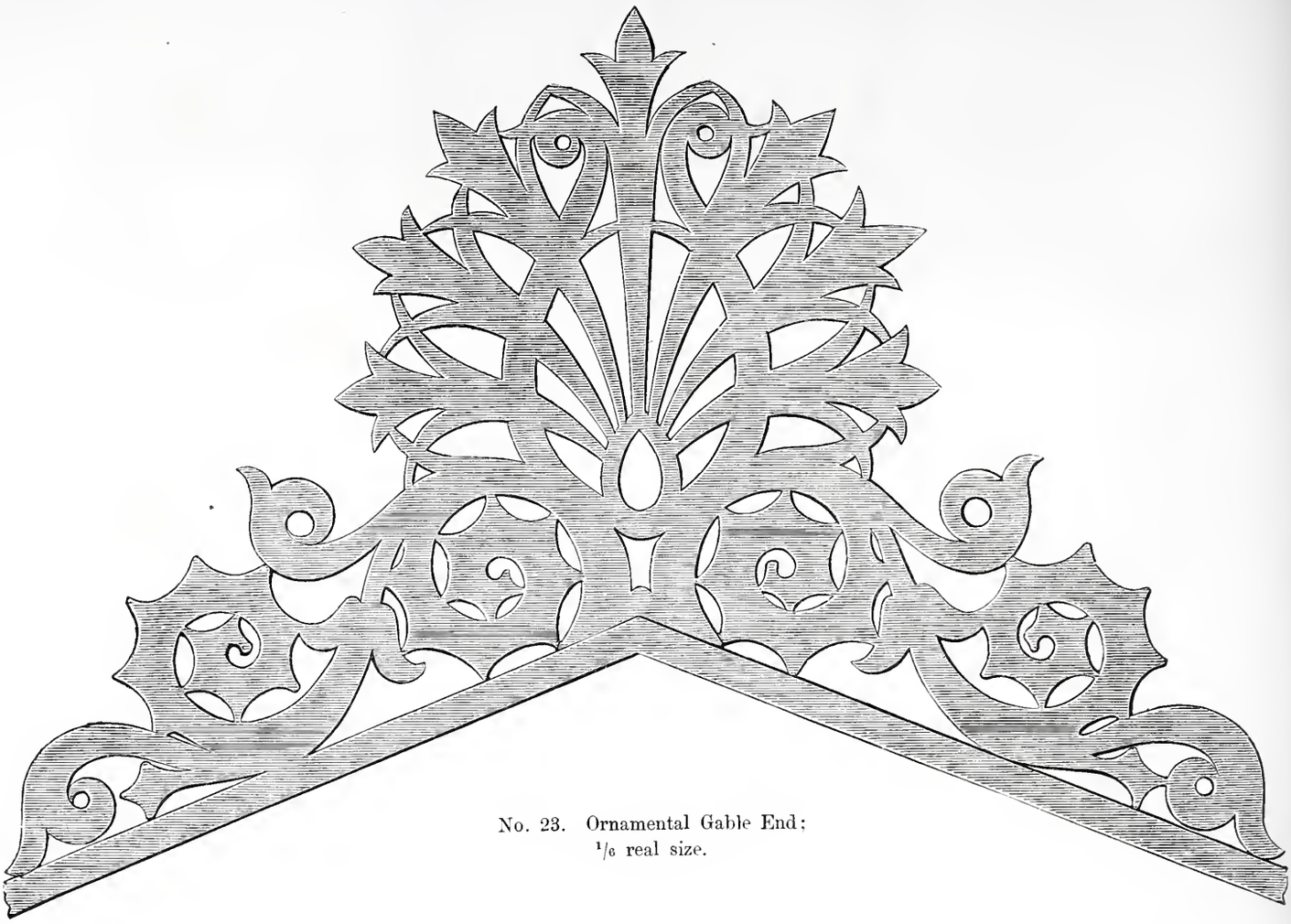
No. 19.

No. 20.

No. 16. Bronze Grille for Window of Bowood Chapel. — By the late Professor Cockerell, R. A. London. Details No. 2 of Supplement.

Nos. 17—20. Modern Roman Jewellery. Executed by the firm Ch. Ansorge from the designs of Salvatori, Rome.

Nos. 21 and 22. Design for a Family Monument. Elevation and section. — Prof. Baumer, Stuttgart.



No. 23. Ornamental Gable End;
1/6 real size.

VARIOUS.

The Glass of the Romans.

The Slade collection in the British Museum is exceedingly interesting, and contains a great variety of Roman glass. Mr. Franks has made a report on it, in the course of which he says: — "Of cut glass, an art which it was formerly denied that the Romans possessed, there are good examples; such, for instance, is a boat-shaped vase of deep emerald hue, and of the same make apparently as the Sacro Catino of Genoa; a bowl cut into facets, found near Merseburg in Germany; and a cup similarly decorated, found near Cambridge. Two vases exhibit designs in intaglio: one of them a subject with figures; the other, a bowl found near Merseburg, exhibits the story of Diana and Actæon. Of vases decorated in cameo, fragments alone are to be found in the collection, but as only four entire vases are known, this is not surprising. One of the fragments seems to be part of a large panel which has represented buildings, etc., and has on it remains of a Greek inscription. One of the rarest specimens in the collection is a circular medallion of glass, on which is painted a griffon; the colors appear to be burnt in, and it is therefore a genuine specimen of ancient painting on glass, of which but three other instances are known."

Roman Decoration.

The Roman correspondent of the *Morning Post* says a very interesting discovery, with regard to the state of preservation of the decorative paintings now revealed, has just been made on the Palatine-hill. During the continuation of the excavations, under the direction of the Chevalier Rosa, two chambers have been brought to light, about 50 yards westward of the temple of Jupiter Victor, which, from the style of their construction, the elegance of their mosaic pavements, and the artistic coloring and design of their mural paintings, evidently belonged to a portion of the imperial palace, dating from the Augustan period. The preservation of these specimens of the interior decorations of a part, at any rate, of the vast fabric, inhabited for centuries by the rulers of the Roman world, is owing to the fact that these chambers, with probably several others which will gradually be cleared out in the same manner, served, after being filled up with rubble, as substructions to an edifice constructed at a posterior date, a portion of which, a foundation wall, indicating masonry of the fourth or fifth century, is still standing within the original area of the principal chamber, which it divides longitudinally, hiding one side of the mural paintings; on the other, however, are several admirably-preserved specimens of Roman house painting, the most remarkable subject being the favourite fable in which Argus, Io, and Mercury are the protagonists.

Alleged Discovery in St. Gervais Church, Paris.

A discovery has, it is said, been made in the old church of St. Gervais. Some persons who were repairing the woodwork at one of the sides of the nave discovered a secret door, giving access to a small chapel, hitherto not known, the walls of which are entirely covered with excellent paintings in the Renaissance style, in good preservation. *The Builder.*

The Workshop

A Monthly Journal, devoted to Progress of the Useful Arts

EDITED BY

PROF. W. BAUMER, I. SCHNORR AND OTHERS.

VOL. I. No. 21.

MAJOLICA.

By Mr. Jacob Falke.

That species of glazed potter's ware which is known under the name of Majolica has shared the fate of many other branches of art, having been highly esteemed and even overrated at first, then falling into decadence and oblivion, and again after some time making its appearance as an antique.

The origin of majolica, though not far distant from modern times, is still rather obscure. It might easily have escaped the eyes of the world, inasmuch as the early productions, both in material and ornamentation, have rather a rough and shapeless appearance. It was not until the beginning of the sixteenth century, the period at which, in Italy at least, everything that was undertaken showed a master hand, that this manufacture took an artistic flight. The most accomplished princes then took majolica under their especial patronage: kings and emperors considered these works their most beautiful treasures, the noblest ornaments for table or credence, not less precious even than vessels of gold and silver. Soon however these royal and imperial patrons passed away, and the artists, no longer honored by their notice, abandoned their craft. Their productions, from having been patronised beyond measure, now fell into disuse, the work became more careless in execution, its beauty diminished, and at length a most dangerous rival arose in Oriental, and later in European porcelain. As regards High Art indeed, the porcelain of that time could not in any degree stand the comparison with the more beautiful majolicas of the best period, but they were more delicate in material, more solid, yet lighter and better adapted to common use, and in their decoration, though baroque in style, they displayed a certain something which attracted the sympathy of the contemporaries of that period in art known as "Louis Quatorze", or Rococo. Thus majolica fell into disrepute, the manufacture of it ceased, and the art, no longer practised, became for the time entirely lost.

Then after a time, amateurs and collectors again seized upon these productions, less however on account of their beauty than their antiquity, not for use or ornament but simply from the mania for collecting. Year by year the price of them increased till it reached an exaggerated height, and then, only a few years ago, followed a sudden reaction, for it was found that the enormous prices offered for them had produced a number of well executed forgeries, which could with great difficulty be distinguished from the genuine, especially as in the glazed terra-cotta little or no change is produced by age. The doubt which naturally ensued diminished also the price of the originals, but the forgotten art was revived and once more brought into practice, and the new manufacture took rank as what it was in reality, an imitation or meritorious revival of an old and beautiful art. Favored by the tendency of the times it quietly grew to greater importance in modern Art-Industry, obtaining far more than mere antiquarian or local interest, for several countries now took part in majolica manufacture, though none with the same perfection and intelligence as Italy.

This importance of majolica as a new or revived and flourishing branch of modern Art-Industry is the cause of our proceeding to discuss it more extensively with the view especially of critically illustrating its

artistic value and marking its place in relation to its modern application.

The name majolica is supposed to be derived from Majorca, and indeed it appears to have been from this island, when under the dominion of the Arabians, that the impulse was given to the Italian manufacture. There were there some celebrated Saracenic potteries, the productions of which, well known to us as to their chief characteristics, were sent as articles of merchandise to Italy and were, perhaps at an early period, in common use there. But the commencement of the peculiar Italian manufacture is traced back to a certain date, the taking of Majorca by the Pisans in 1115. In the rich booty found in the conquered town were immense numbers of plates of baked clay with a metal-like lustre inserted as memorials in the walls of the churches. So placed, collecting within their brilliant hollows, as in a concave mirror, the rays of the sun, they produced a most pleasing and splendid appearance. It is not improbable that these "*bacini*" or basins became the excitements to imitation. It may however be that the Saracens of lower Italy already possessed potteries similar to those of the Arabians in Majorca, Spain and Sicily, and that it was from them that the art extended itself northwards.

We must nevertheless leave these suppositions undecided, especially as the majolica manufacture, when it began to attract attention by its fame and importance, did not make its appearance either in Pisa, or in the vicinity of the former Saracenic colonies, but in the old Umbrian province, the little duchy Urbino, which, as far as history can prove, became the cradle of the majolica, and where it certainly displayed itself in the greatest beauty and perfection.

The first city which obtained a really great and extensive reputation for majolica manufacture was Pesaro, which was at least a hundred years in advance of any other place. Even in the fourteenth century it is certain that the potteries of Pesaro took an artistic and decorative direction and were favored and nurtured by the Maletestas who were then the reigning family. The greatest part of them were exported as articles of commerce, while many of the most beautiful specimens were sent as presents by the princes to other sovereign powers. These early productions of Pesaro are not however the real and genuine majolica, and therefore are termed technically and archæologically *mezza-majolica* or semi-majolica. They have also a greater resemblance in their exterior to their old Saracenic models, together with that peculiar metallic and iridescent glaze which was their especial charm. They do not consist of one single layer of white or yellow clay, like the real majolica, but chiefly of a red clay which is again covered over by a thin coating of white earth found in Sienna. This white coating after having been once exposed to the action of fire is ready to receive painting and glazing. The ornaments are very simple, and in their arabesques recal their arabian origin. To these were added, besides the arms which form also a constant and material part of the decoration in the Moresque vessels of Spain, representations of Saints, heads of Deities, portraits of contemporary princes and their wives, with Italian and Latin inscriptions all roughly executed, so that in an artistic point of view, in the matter of design and painting the mezza-majolica can pretend to no high work. In color also they are monotonous showing no other tints than yellow, blue, green and black. Their great charm consists in their enamel of gold or mother-of-pearl which, as the light falls upon it, reflects so many different colors. Their artistic value is derived from their decorative nature and is favorable to their acceptance once more as articles of luxury. In rooms, and especially on buffets or sideboards with a dark background they have an excellent effect. The imitator or restorer must be careful to make the speciality and value consist in this and not in the painting or the busts and heads.

This is indeed also the case with the real majolica, of which the decorative part is the prevailing charm, though this was not formerly the reason of its high estimation or of its antiquarian value. It was prized and paid for in proportion to the excellence of the figures. Where these novel objects, which obtained such immediate celebrity, were manufactured, or where they had their beginning is not easily ascertained, for our whole acquaintance with majolica, and especially our knowledge of the different marks which characterize, and that with no great precision, the different manufactures, is to an extraordinary degree imperfect and full of doubt and mere conjecture. Even those marks which are most frequently met with are not always to be attributed with certainty to one particular factory. Probably the new art may have originated or been elaborated in Urbino and introduced into Pesaro about the year 1500. The peculiarity was that the whole mass consisted of a whitish clay, and the coating of the majolica was dispensed with, and instead of the pure enamel of lead, one of tin, or of tin and lead mixed, was employed. This latter was borrowed from the terra-cotta of Luca della Robbia and his family, which is marked by the characteristic white enamel coating. The vessel, when shaped from the clay, was placed in the oven, half baked, and then dipped into the glaze which gave it an opaque covering; on this the artist painted his designs, holding, as is shown by a representation on one of the majolicas, the vessel in his left hand on his knee. A sure and light hand was absolutely necessary, as the still damp glaze quickly absorbed the color, and rendered it impossible for the artist to correct any fault he might have made. Whatever was to be done must be quickly and precisely done, and this is just the reason why so many, and indeed the greater number of the productions, are of altogether hasty workmanship, while the hand proves that they might have been better executed. When the painter completed his work the vessel was again dipped in a liquid called *marzacotto* glaze and a second time placed in the oven. The glazing and painting would then form into a perfect enamel neither under nor over but actually in the glaze, and a real enamel painting with all its true properties would be produced. If it were re-

quired to give the majolica its rainbowlike glaze it would have to undergo another process and to be introduced a third time into the oven.

Not all at once however did the genuine majolica scale the heights of pictorial perfection; for some years it did not free itself from the harshness and imperfection of the mezza-majolica, and still longer did it strive to enhance its peculiar advantages by the charming play of its iridescent hues. We may therefore, without considering the period of the mezza-majolica, distinguish three epochs of its fabrication, that of its commencement and development from 1500 or somewhat earlier to 1530; then its prime from 1530 to 1570, comprising the reign of Duke Guidobaldo II (1538—1568). The third period from 1570 is also the period of artistic decadence and the extraordinary multiplication of manufactures whose origin is due for the most part to the dispersal of the artists of Urbino. The rule for the foregoing division is afforded by the perfection of the designs and especially of the artistic execution; as to pure decoration we are not sure whether we ought not to give the preference to many works of the first period. Of the factories in the duchy of Urbino, those of the city itself or of the immediate neighbourhood were of the greatest importance and produced the most excellent specimens of artistic perfection, insomuch that every article attributed to the best period and thoroughly imbued with the same characteristic features is claimed as the workmanship of the town and factory of Urbino. But the peculiar manufacture of the first period is that of Gubbio which enjoyed the patronage of Francesco Maria dello Rovere, the predecessor of Guidobaldo II, who fixed his residence in that town. Gubbio however owes its reputation less to this princely support than to the efficiency of one man, Giorgio Andreoli, indisputably the best and most celebrated ceramist of any country.

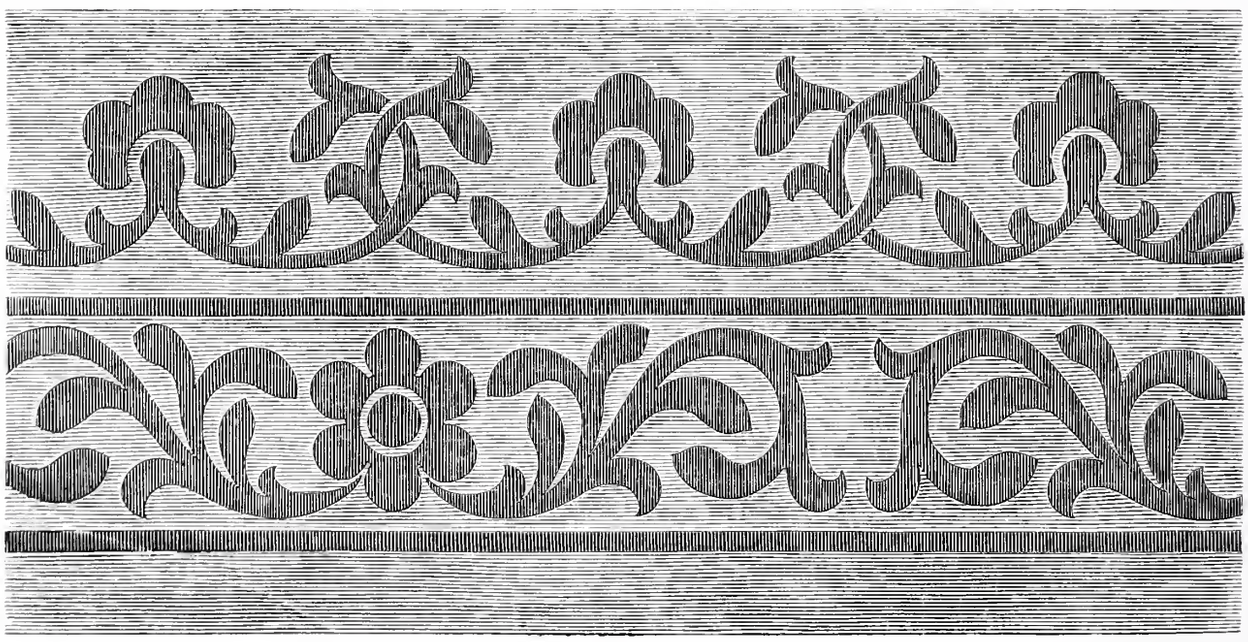
The history of this person, a nobleman of Pavia, is rather obscure. It is said, but we entertain some doubt on the subject, that so early as the year 1485, he came to Gubbio as a person of sufficient distinction to be well received by the princes, and that he continued to reside there till 1552, while his works date from 1518 to 1537. He was professionally a sculptor, but as he worked after the manner of Luca della Robbia, he was conversant with glazed earthenware, and it is easy to understand that he was connected with the majolica manufacture of Gubbio and its rising importance. Nevertheless there is something striking and enigmatical in the acknowledged works of Giorgio which are generally marked with his name or sign. The peculiarity of his pottery consists in this, that even those productions which in all other respects were genuine majolica he covered with the metallic irisdescent glaze of the mezza-majolica and united with this some other singularities. In all he added to the limited scale of color peculiar to the majolicas an admirable ruby-red, due either to his own invention, or derived by an exclusive privilege from another ceramist of Gubbio. This red, peculiar to Gubbio, was entirely lost about the year 1500, the date of Giorgio's death, after having been in existence almost thirty years. He also applied to the golden and silver lustre of the mezza-majolica a third color, a dark orange or copper of extraordinary depth and richness. He is remarkable too for having given to the color of the majolica a splendor and effect which no one, either before or after him, has been able to attain.

Giorgio's works, which besides are almost all provided with some special sign and frequently with the date of their production, may be easily recognised. Sometimes however his name and peculiarities are found on vessels which originated from some other factory of the duchy Urbino or Casteldurante, and some are even marked with the name of other celebrated majolica artists. Hence we may suppose that Maestro Giorgio was not exclusively a majolica manufacturer and painter, but that he was in the habit of ornamenting the works of other artists of his craft with his peculiarities and discoveries. Very probably whenever the artists of Urbino and Casteldurante wished to have their works enriched with his metal-like lustre and ruby color, they sent them to Giorgio who was the sole possessor of the secret, and it may easily be conceived that works passing for his show a great diversity of manner and are frequently executed in a rough style. To Giorgio succeeded his son Vincenzo, styled Maestro Cencio who may rather be considered his fellow-workman, for his works are hardly later than his father's. Indeed after 1540 scarcely any majolicas are found, showing the metal-like lustre.

The conclusion in our next.

Specimens of Ornamentation.

No. 1.



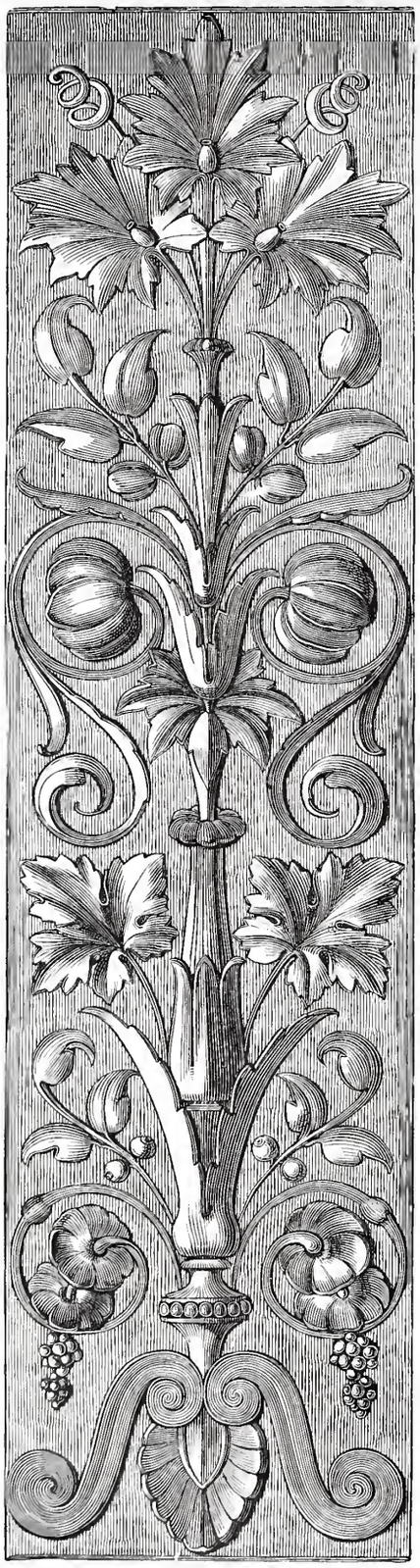
No. 2.

No. 1. Græco-Roman Style. Antefix in terra-cotta, ornamented with a comic mask. (See Parts 7 and 10.)

No. 2. Renaissance Style. Border of Vestment, red on gold ground from the Dutch Gobelins in Dresden Gallery.

No. 3. Modern Work. Paper Border.

Ornament partly light-yellow on dark-gray ground, partly dark-gray on steel-gray, the bordering lines being also dark-gray.



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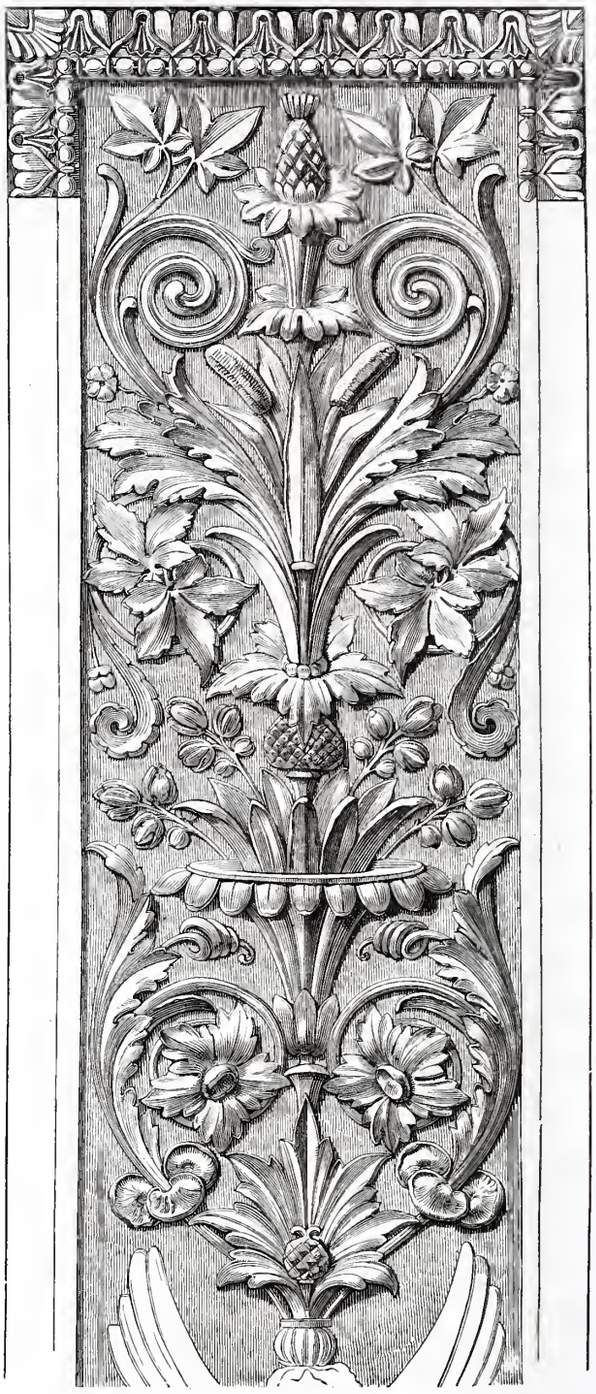
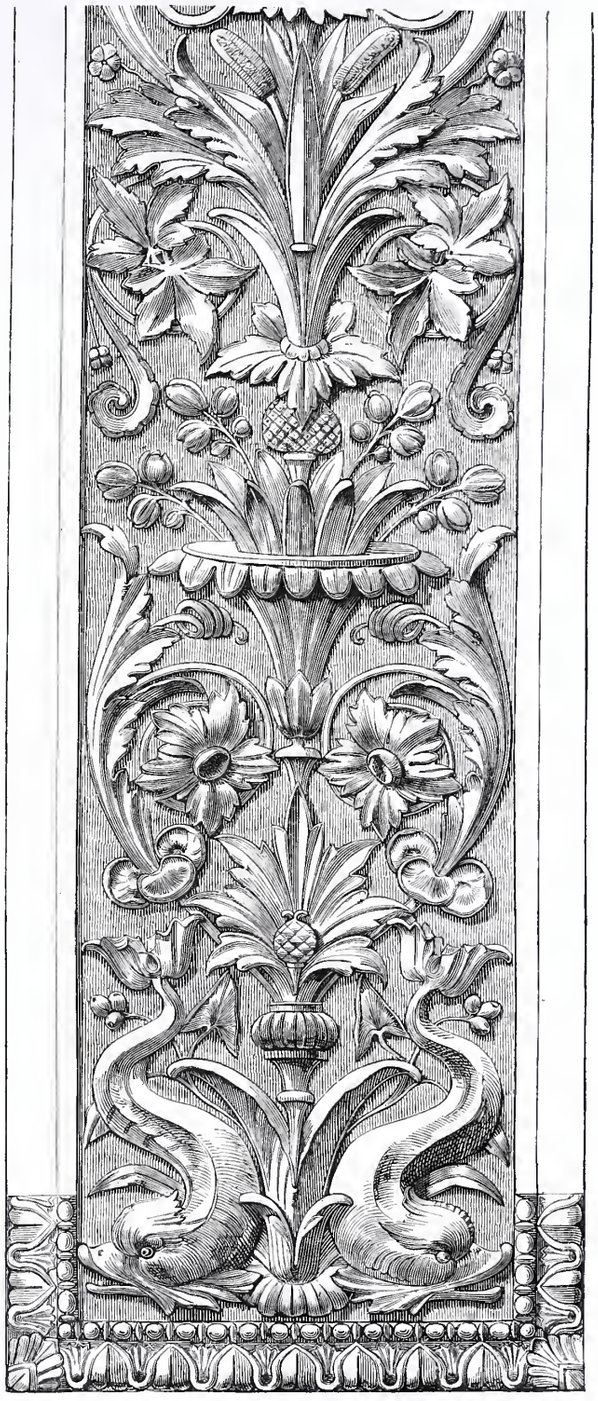


No. 5.

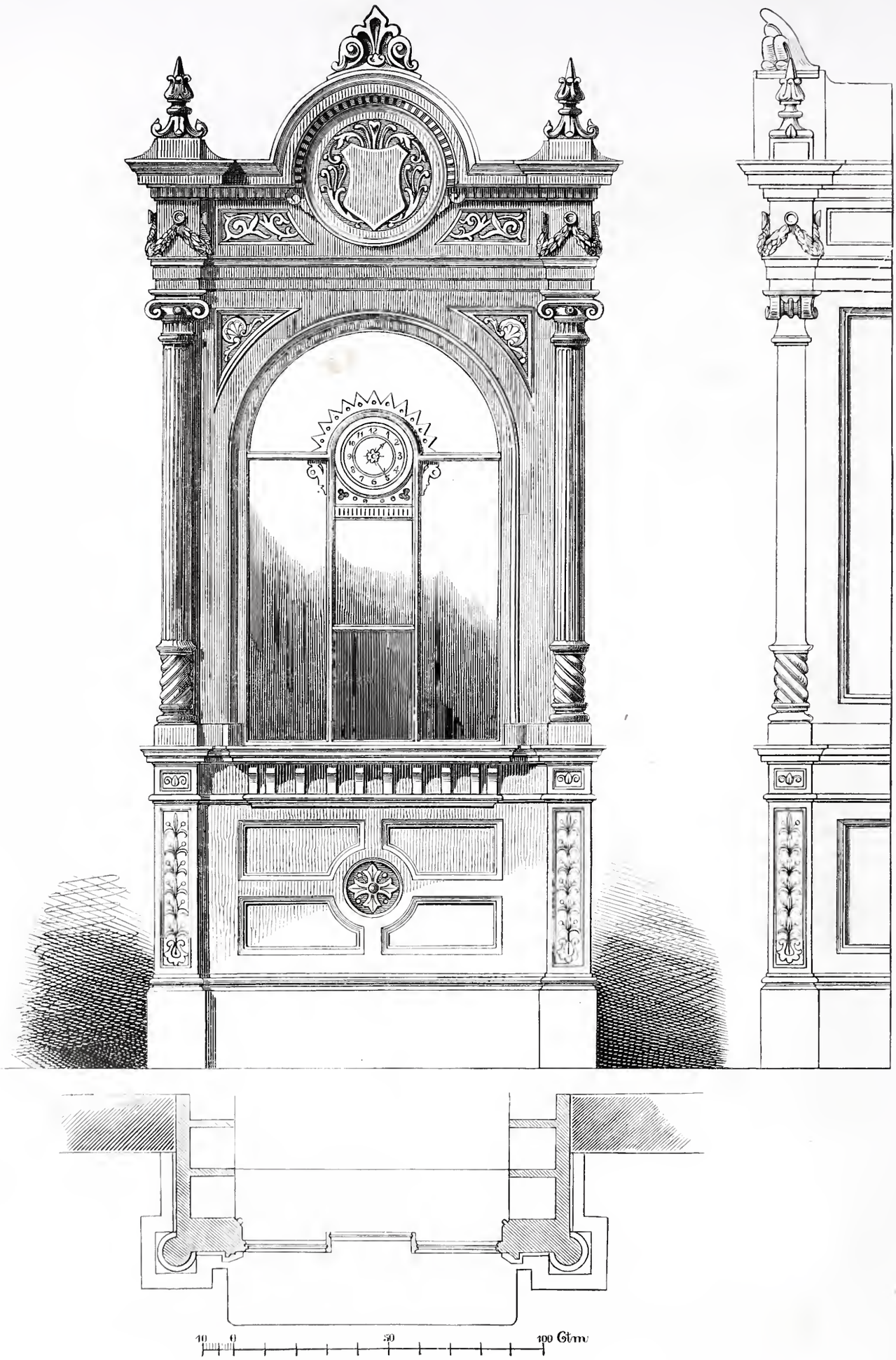
Nos. 4—7. Panels of Pilasters. Mr. Albert Jungermann, Sculptor.
No. 4. From the Royal Vestibule of *Ostbahn* Station, Berlin.

No. 6.

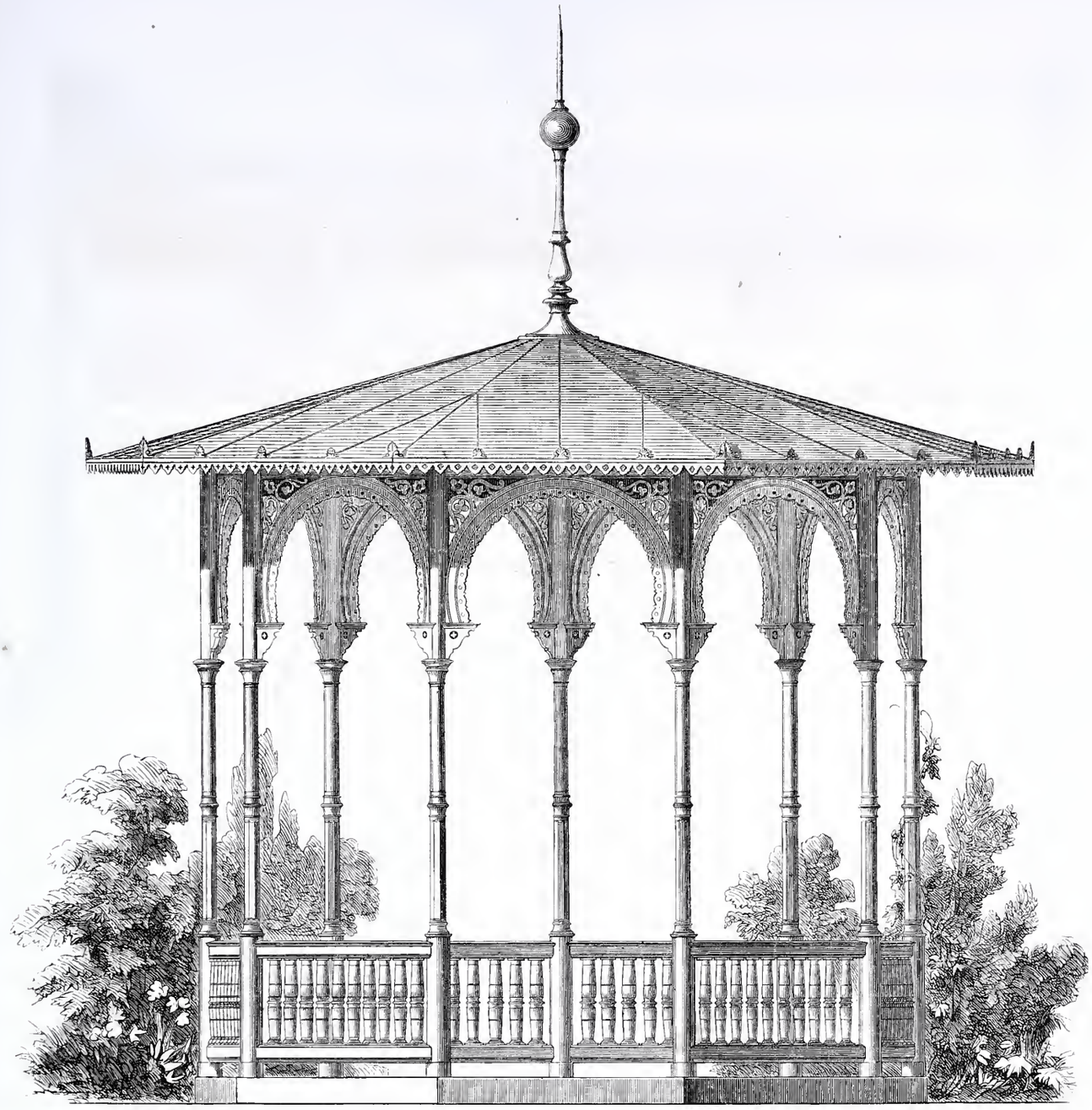


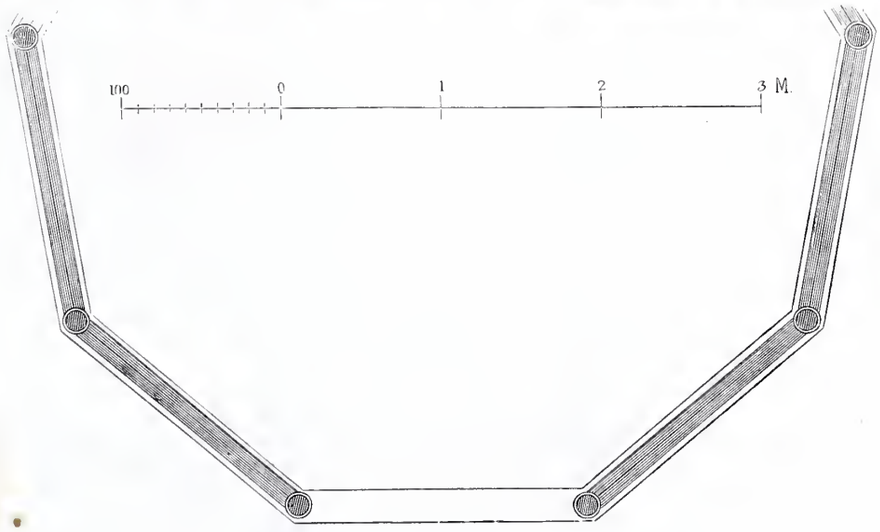
No. 7.

Nos. 5—7. From Villa Ruhwald near Charlottenburg; height 3^{m}, breadth 60^{cm}.

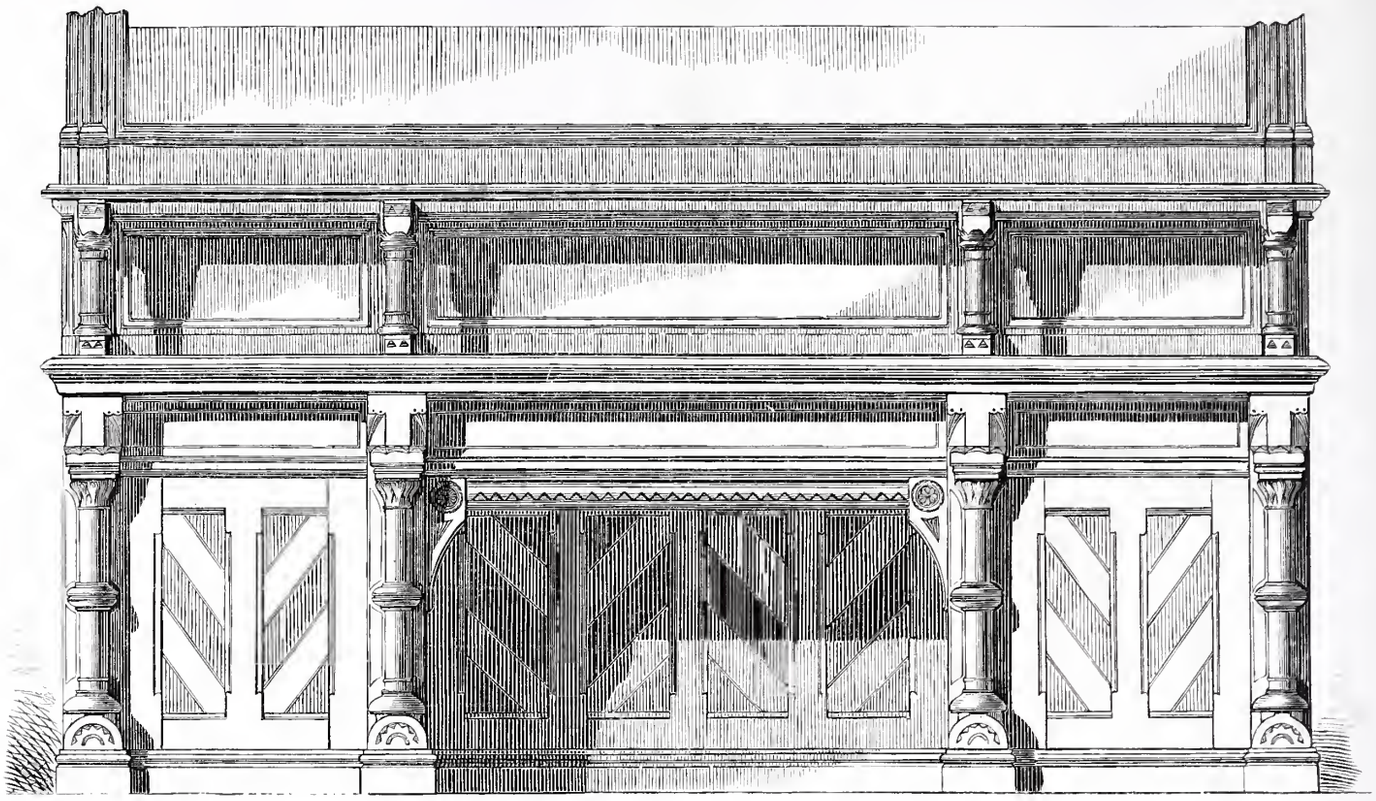


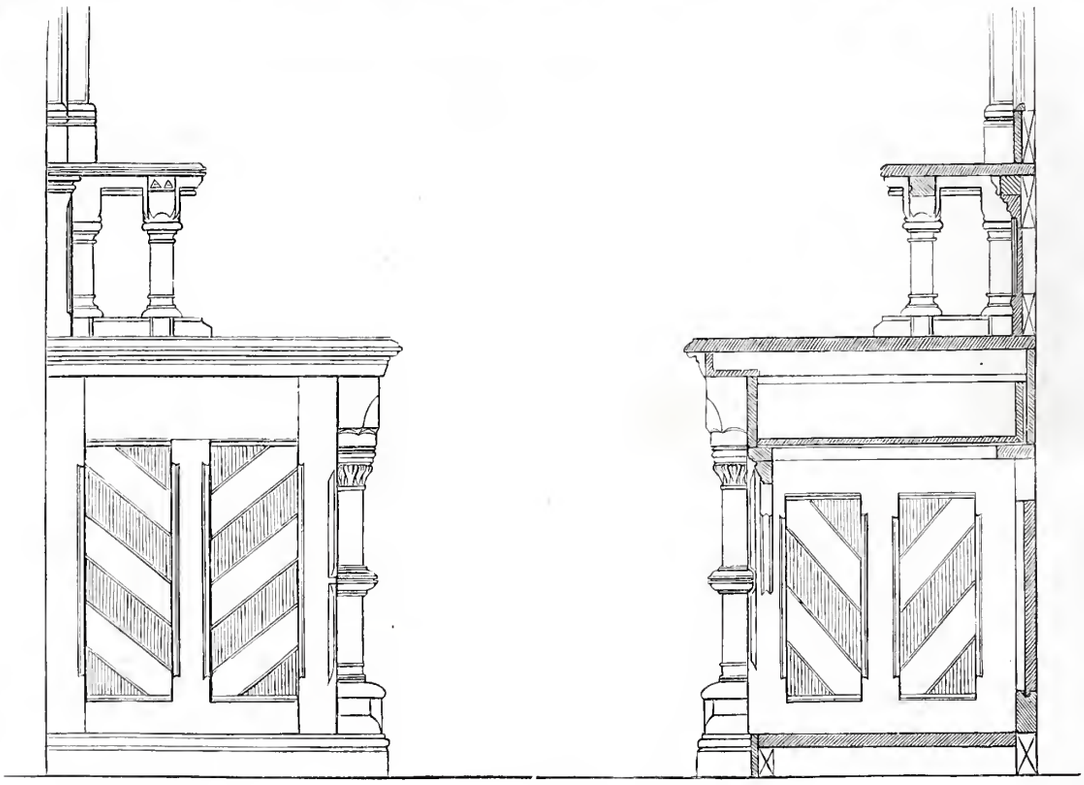
Nos. 8—10. Design for a Ticket Office.



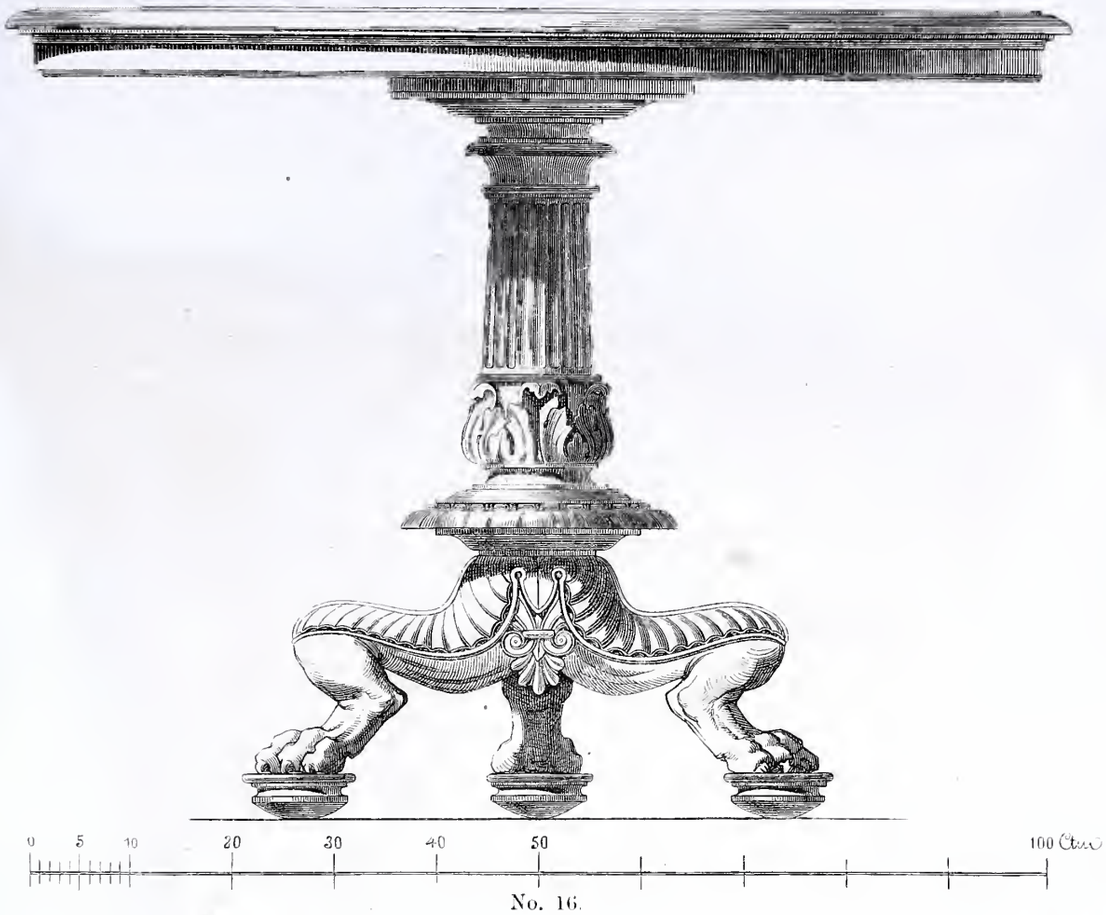


Nos. 11 and 12. Garden Pavilion. Prof. Geul, Munich.
Ornamental woodwork on stone-basement with zinc covering. For details see Nos. 2 and 3 of Supplement.





Nos. 13—15. Design for a Side-board with Mirror over. Mr. Alfred Waterhouse, Archt., London. Parts shaded in Pollard oak, the rest in wainscot; scale 1/12 full size; for details see No. 1 of Supplement.



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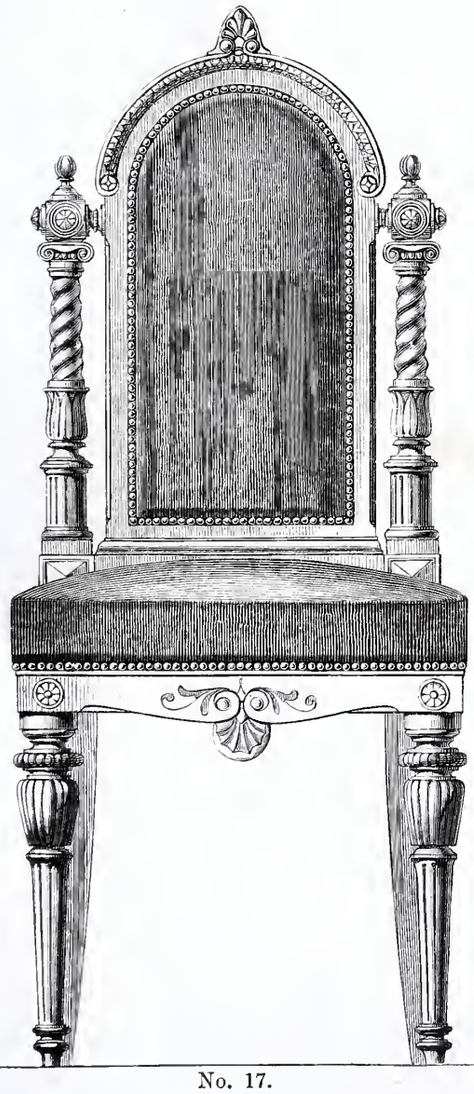

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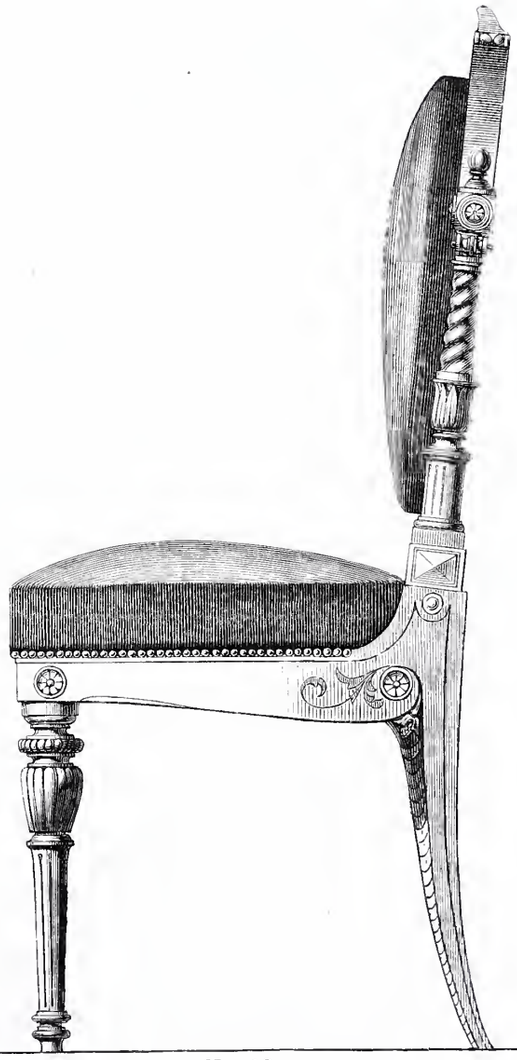
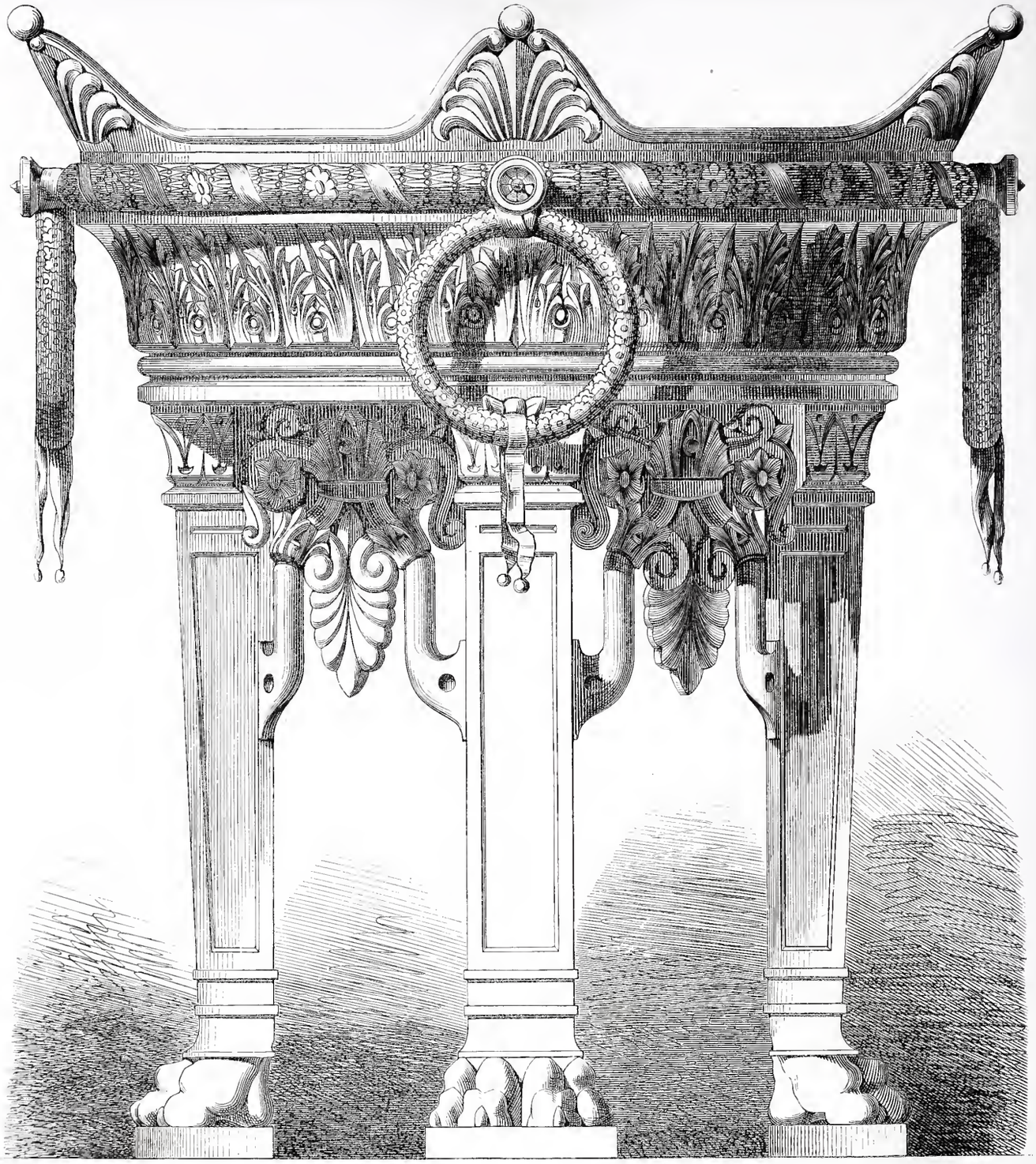
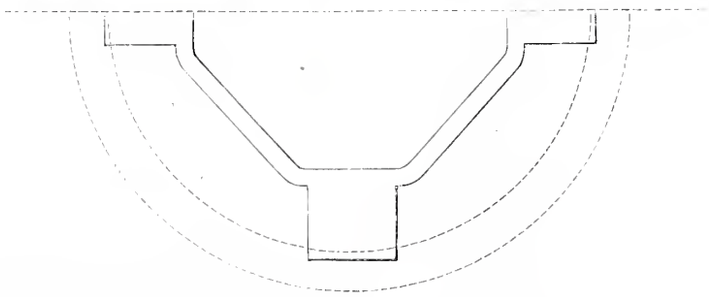


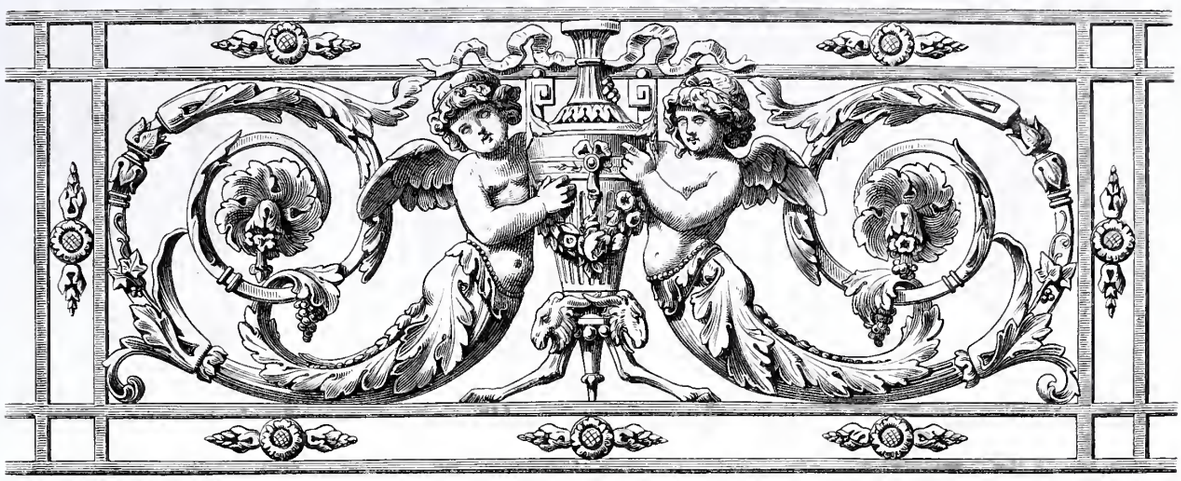
No. 18.

Nos. 16—18. Design for a modern Table and stuffed Chair. Mr. Emil Torge, Archt., Munich.
Details Nos. 4 and 5 of Supplement.





Nos. 19 and 20. Tripod for Funeral Ceremonies. From drawings of M. Paul Bénard, Archt., Paris. 1/10 real size. This *lampadaire* or tripod is placed on pyramidal pedestals in the corners of the catafalco.



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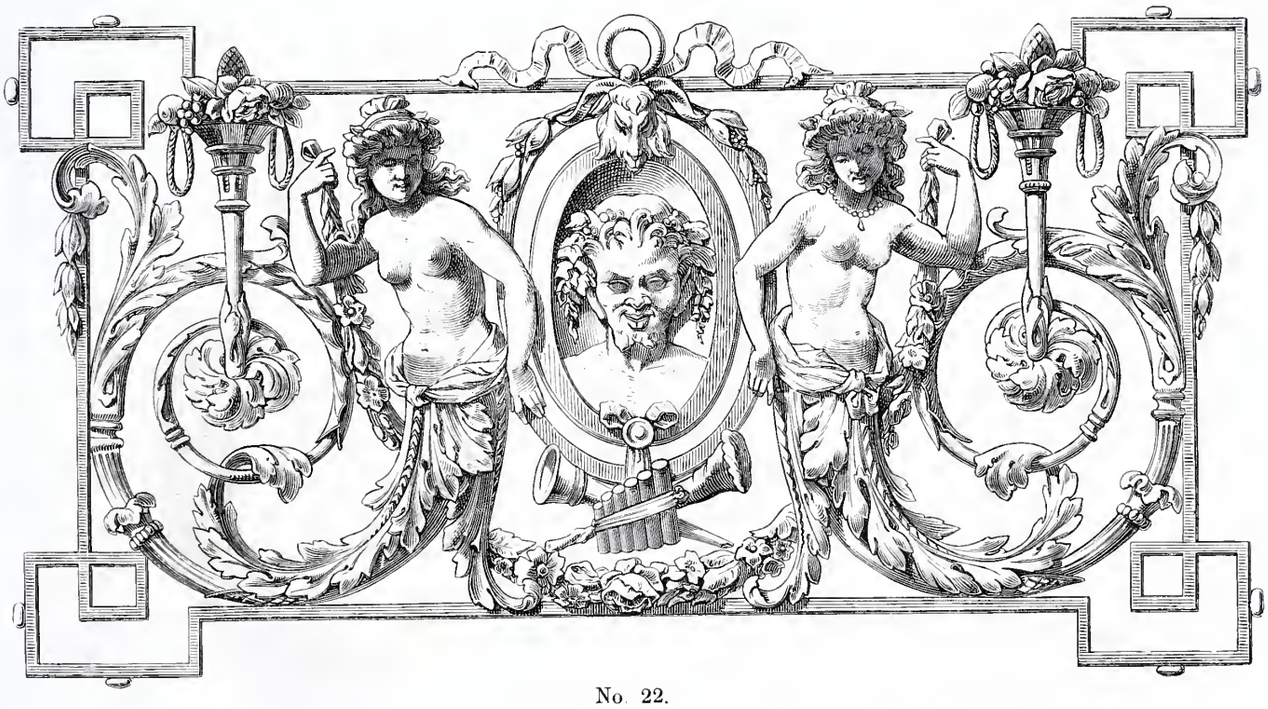
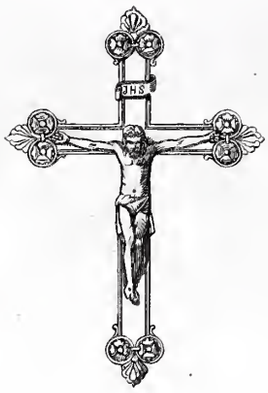


No. 22.

Nos. 21 and 22. Cast-iron Balconies; style Louis XVI, 1/10 real size. Executed by M. P. Chapal, 66 rue du Chateau d'eau, Paris.

No. 21 Window Balconet, No. 22 Great Balcony.

No. 23.



No. 24.

No. 25.

No. 26.

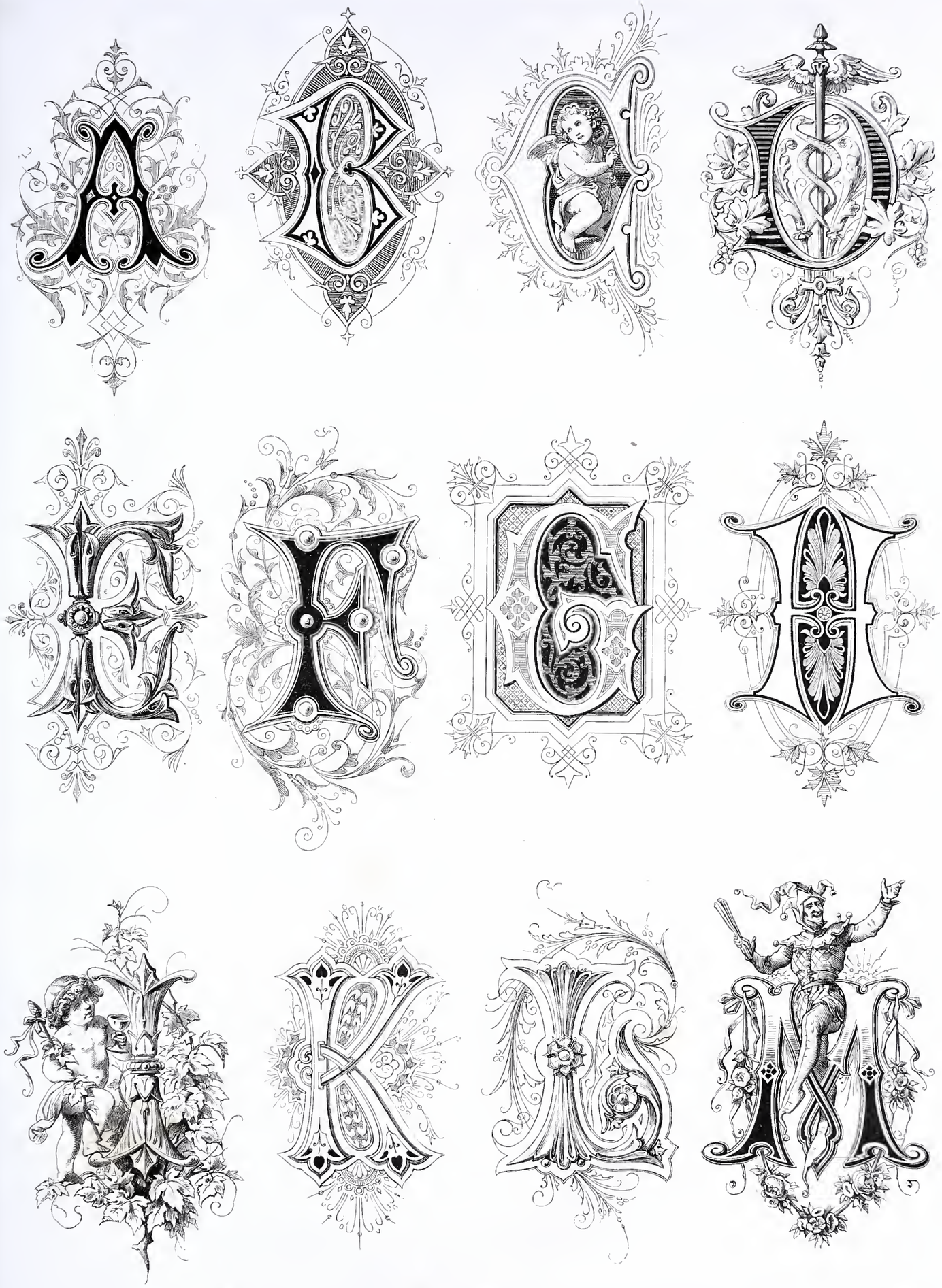
Nos. 23—26. Designs for Church Vessels in the style of Italian Renaissance by Mr. V. Teirich, Archt., Vienna.

No. 23. Pastoral Staff. The 6 niches of the richly ornamented knob showing the statuettes of the four Evangelists, of our Saviour and the Virgin.

No. 24. Pectoral Cross.

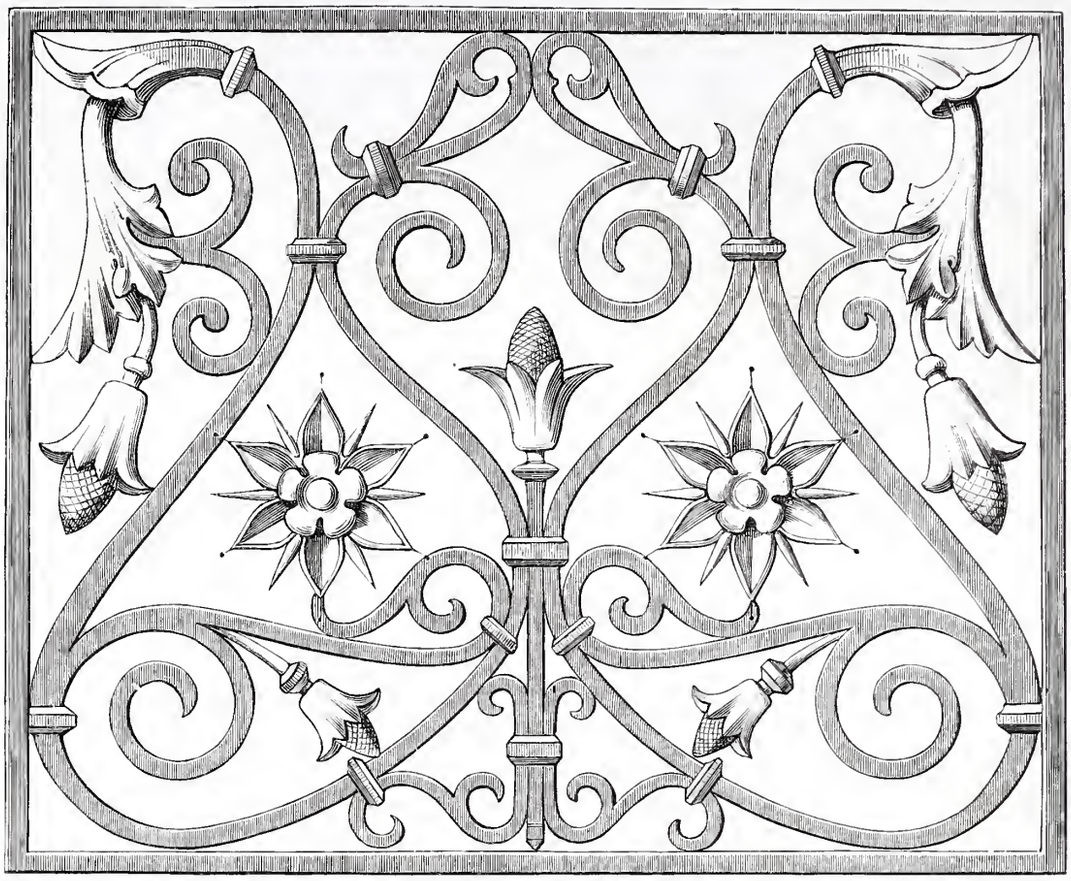
No. 25. Holy Oil Vessel; the oil itself being kept in a separate box placed inside the vessel.

No. 26. Pontifical Ewer; used for washing the hands.



Nos. 27—38. Ornamented Initials. Mr. J. Schnorr, Artist, Stuttgart.

The remaining initials in our next.



No. 39. Wrought-iron Screen. M. Paul Bénard, Archt., Paris.

VARIOUS.

Enamels.

The fine enamels of trade are generally prepared by fusing at high temperatures, silica, oxide of tin, and oxide of lead, and spreading the mixture over the surface of a sheet of copper, of gold, or of platinum. The objections to these enamels are, in the first place their high cost, and secondly the impossibility of giving them a perfectly flat surface. Mr. E. Duchemin has advantageously replaced them by the following economical and efficient compound: Arsenic, 30 parts by weight; salpeter, 30; silica (fine sand), 90; litharge, 250. This is spread on plates of glass of the required shape and size, care being taken, however, that the kind of glass employed be not inferior in point of fusibility to the enamel. Enamelled glass prepared from the above substances may be drawn or written on as readily as if it were paper, and in less time than one minute the writing may be rendered indelible by simply heating the plate in a small open furnace or muffle. Drawings, autographs, legal acts, public documents, historical facts and dates of importance, labels for horticultur purposes or destined for out-of-door exposure, coffin plates, signboards, show-case signs, etc., may thus be cheaply made, which will resist atmospheric influences for ages.

First class photographs, either negatives or positives, may be taken on such enamels without collodion, by using bitumen, or citrate of iron, or perchloride of iron and tartaric acid, or bichromate, or any other salt. A good solution for this purpose is, water, 100 parts by weight; gum, 4 parts; honey, 1 part; pulverized bichromate of potash, 3 parts. Filter the liquid, spread it over the enamel, and let it rest, after which

1. Expose it to the camera.

2. Develop the image by brushing over it the following powder: Oxide of cobalt, 10 parts by weight; black oxide of iron, 90 parts; red lead, 100 parts; sand, 30 parts.

3. Decompose the bichromate by immersion in a bath formed of: Water, 100 parts by weight; hydrochloric acid, 5 parts.

4. Wash it in clean water and dry it.

5. Vitrify the proof on a clean piece of cast iron, the surface of which has been previously chalked. One minute will suffice for indelibly fixing and glazing the photograph, which must be carefully and slowly allowed to cool.

Photographs on enamel of any size, taken in this manner, are perfectly unalterable under all atmospheric conditions, and may consequently and aptly be called "everlasting photographs".

Scientific American.

Tungstate of Barytes as a White Pigment.

The tungstate of barytes is said to have been in use in France, as a substitute for white lead, or white zinc, for some months with success. It has been employed for oil and water-colour painting and chromo-lithography.

Art Exhibition.

An International Exhibition will be held in London in 1871, and, according to the present plan, will be "continued" annually. Full details are not yet issued; it is, however, understood that the principal director is Col. Scott, R. E., and that it will be held at South Kensington, where some additional buildings will be erected for the purpose. Each annual exhibition will consist of but *three* classes of industrial works. Ample time will thus be given for preparations. It would be idle to speculate on the arrangements for rendering the series practically useful; but with the experience now obtained by the staff at South Kensington, we cannot doubt that the project when carried out will be as perfect as it can be.

The Workshop

A Monthly Journal, devoted to Progress of the Useful Arts

EDITED BY

PROF. W. BAUMER, I. SCHNORR AND OTHERS.

VOL. I. No. 22.

MAJOLICA.*

By Mr. Jacob Falke.

In point of color and decorative effect, the Gubbio-ware of this first period is, as we have already stated, the most excellent of all majolica manufactures. No other reaches the depth and richness of color of those bowls and plates which Maestro Georgio adorned with his golden arabesques on dark blue grounds. The factory of Urbino, which could not compete with this decorative treatment, and perhaps, on account of an alteration in taste, did not desire to do so, struck out another style of ornamentation, and during a short period of time, produced those brilliant works which are generally considered as the head and crown of all majolica manufactures. It substituted design for color, and in this substitution consists the great peculiarity of the second and best period.

Not however that color was altogether laid aside or neglected, only the highest value was attached to the excellence of the figure-subjects and their perfect execution. The shades of color were rather restricted, consisting only of green, yellow, blue, violet, black and white, so that no perfectly pictorial success, at all events no faithful imitation of nature, was attained, or perhaps even attempted. The artist was obliged always to consider how he was to do this or that with his color, whence it happens that we find the flesh tints usually shaded with yellow or green, violet, blue and black. The same reason, namely the poverty of the pallet, gives to the majolica, when looked upon in the mass, almost an impression of monotony, for there is always in large groups the same tone of color, only stronger in some, weaker in others, and even this difference is to be attributed more to the different epochs of production than to particular specimens or manufactories. Hence it follows, almost of necessity, that in most majolicas the painting, owing to the process of manufacture, is hasty and therefore often deficient in design and execution, and we need not be surprised that there are many lovers of art, and those of no mean intelligence, who are altogether without enthusiasm for majolica. And yet these works have their picturesque charm. The limitation of resource has not always proved a disadvantage in Art-Industry; it has often guarded against extravagance and led to a definite style, or more intense development of power. So it is here. The colors which are at the command of the majolica-painter allow of a very beautiful and powerful harmony; the yellow-green or green-blue tint of extreme depth and richness that characterises the majolicas of the best period is most pleasing and ornamental, and it may be easily conceived that if a buffet is garnished with majolica, in a dining-room with red or dark brown decoration, the effect will be excellent and imposing, while it will be of little consequence whether the design of some specimen is hastily or perfectly executed. This favorable result is owing to the peculiar enamel in which the colors lie embedded and which gives them that limpidity, depth and transparency which are the properties of deep and clear water. In comparison with these, painted porcelains appear dry, hard and opaque, and the more so, the higher their pretensions are.

Neither artists nor amateurs, however, during this period looked herein for its chief charm, though it certainly entered into their regard and consideration, but,

* see p. 321 *ante*.

as we have already said, in the richness and beauty of the representations upon it. The circle of such representations, therefore, became considerably enlarged, and embraced indeed the whole province over which painting presides. The purely ornamental embellishments were retained as peculiar to the mezza-majolica but they were more richly elaborated both in idea and execution; and then there pressed in all that flood of fantastic arabesques and grotesques which had had so charming and delightful a beginning with Raphael, or rather before him, and ended afterwards with the most varied, the most unmeaning and tasteless agglomeration of all possible things. While indeed the best period of majolica lasted, there reigned in the arrangement of these ingredients an artistically conceived order, and a certain grace which lent its charm to their loose and light play.

Another thing retained was the half-length portrait, especially on bowls and plates for marriage presents, on which were very suitable represented portraits of the happy pair. And then there opened up to the majolica-painter the numberless representations from Sacred History and Mythology, which then became the principal and most characteristic objects of embellishment. Subjects were found also in ancient history and sometimes, though rarely, in contemporary events, though even these were to be seen on dishes and plates, as, for example, the taking of Tunis by Charles V.

These changes introduced of necessity an entirely different class of artists into the majolica manufacture. Till now decorative painting had been sufficient, and the ornament approved even by the artistically educated eye which would indeed be offended by badly executed figures. Assuredly very few of the majolica pictures were original compositions but rather copies on plates, vessels and bowls, of the known and celebrated creations of the best masters of those times. Hence it was that Duke Guidobaldo sought to provide his factory at Urbino with the greatest possible number of Raphael's cartoons and sketches, and took great pains to secure the drawings of other great artists. The engravings of Marc Anton and others were added to this collection. Hence we can understand how it is that we meet with that extraordinary number of Raphael's compositions in majolica which gave to it as a byeword the name of Raphael-ware. We shall however greatly err, if we suppose that Raphael, as is commonly said, and as the happy possessor so willingly believes, has painted a single one of these plates; they originated altogether after his death. He could not possibly have painted in Urbino, except as a little child, before he went to Perugia to the school of Pietro Perugino, and this was long before the best period of the Urbino manufacture.

Though the pictures on the majolicas were for the most part copies, still the progress of art required that they should be well drawn and to a certain degree well executed, as far as the difficulties of the art, and the nature of the material, especially of the colors, permitted. Above all therefore Duke Guidobaldo sought to employ good draughtsmen in his factories, and first of all invited Battista Franco from Venice, who remained with him for a long while as one of the principal artists, and produced many designs for the majolicas, especially the before named arabesques *à la* Raphael which were all attributed to the Urbino factory. In 1560 after having spent almost twenty years in the factories of the Duke at Pesaro and Urbino he returned to Venice.

Another and perhaps the most celebrated artist of Urbino was Orazio Fontana, the most important member of a whole family of pottery painters. In the execution of the designs and in enamel painting he has no equal, so that the numerous works which bear his signature are still highly prized. He was a fellow worker with Battista Franco, from 1540 to 1560. With these two may especially be named Raphael dal Colle, whose Christian name in connection with majolica has contributed to the error mentioned above, and Francesco Xanto Avelli born in Rovigo, but who settled and distinguished himself in Urbino, and whose works are characteristic of the best period. His drawing is correct, his coloring rich, his flesh tints yellow relieved with white, the drapery blue or yellow, the hair of the female figures fair, the leaves of the trees a blueish green, the light upon them a pale green, the stems black with yellow, which are indeed the usual colors in by far the greater part of the majolicas of this time. The younger brothers and nephews of Orazio as well as Giacomo San Franco and others pass into the era of the decline.

Whatever value and importance the artists of the best period, and with them their princely Mæcenases and amateurs, attached to the painting, it is not this which forms in our eyes the only or most highly prized characteristic of majolica. Another thing to which we have to direct our attention in those vessels and utensils is the form, which we must consider as original though not always successful, and yet certainly most rich in instruction and worthy of careful study. The pottery of the Middle Ages did not stand high in any artistic sense, but it broke away from the traditions of the Antique pottery, it presented no direct reminiscences whatever of the charming and perfect forms of Grecian earthenware, and if they show nevertheless anything in common it was suggested by the very material and workmanship. With the revival of art in the fourteenth and fifteenth centuries, no new discoveries gave any impetus to pottery, as they had done to Architecture and Sculpture, and partly also to Painting. The paintings of the Thermæ of Titus, discovered in the time of Raphael, called into existence a new kind of surface ornamentation, but the admirable productions of Athenian and Grecian pottery still reposed in the bowels of the earth. So, too, the earthenware manufactures of the fifteenth and sixteenth centuries, if they were to surpass the somewhat rough ware of the Middle Ages as well as Spanish-Arabian models were left to the resources of their own genius, and had only to rely on the highly refined taste which distinguished the Italian nation at this time.

It is owing to these circumstances that in the Italian majolicas, and more especially in the pottery of the six-

teenth century, an immense profusion of forms is at our command as patterns for the revival of this branch of Art-Industry, not indeed equalling the Classico-Antique either in richness, or in perfection of beauty and delicacy, but in return, much more adapted to modern requirement and our present material. First we may consider the flat articles, dishes and plates, the shapes and lines of which are often spoilt by the prevailing reminiscences of the Rococo style. In respect of the breadth and form of the rim, its proportions to the bowl and the depth of the latter, we may study with advantage the old majolicas, bearing in mind however that our usual material the porcelain, or its inferior earthenware substitute, by its greater solidity and hardness allows a greater thinness and altogether a greater delicacy of treatment. By the adoption of porcelain instead of majolica we ought to have improved instead of deteriorating in form, which has, alas, been too commonly the case.

Of still more artistic worth are the upright articles, such as bottles, jugs, ewers, vases, candlesticks, inkstands, saltcellars, etc., as in these a richer refinement in form is possible, and indeed has taken place. The objects of this kind which still remain for our study are as numerous as they are varied, and although many of them trench on the Rococo, being of a style rather overcharged and licentious, still they present an abundance of forms rich in instruction and worthy our best attention, and a mass of motives which might be very happily realized in our present pottery and especially in the manufacture of our vessels. Allthough in those objects, the painting especially, and then the relief ornaments are the principal decorative features, there may still be recognised throughout the unmistakeable intention to give an artistic finish to the outline, to enrich it by a harmonious variety of mouldings, to relieve the sway of the lines by the judicious addition of a handle and thus to render the vessel a genuine work of art. It is not, however, every production of the majolica manufacture, even in the short period of its perfection, that is to be taken as a model, and still more must we emphatically call attention to the faults which are to be avoided. These consist chiefly in an unskilful and injudicious style of painting, incongrnous with plastic forms, or with the structure of the vessels. We must indeed confess that it was at the very best period of majolica manufacture that too much use was made of the painting, and that it was quite contrary to all feeling and nature of art that dishes and plates and other articles of common use, and that too just on the spot they are most used, should be decorated with pictures of figures and even sacred subjects. Such treatment is contrary to all propriety, even if the articles are not themselves taken into use, but are merely to adorn sideboards and chests. At those times, however, this feeling of criticism did not exist, and so we may, as of old, delight our eye with the pictorial charm of these objects.

But another thing which ought to have been more seriously considered is, as we have said, the structure and moulding of the vessel. A plate consists of the rim, the bend and the central flat surface. Due regard must be had to each of these three members, if their ornamentation is to be successful and faultless. In numerous instances this has been carefully observed by the majolica painters, and there are many specimens of this kind which are excellent in their effect. But in no less numerous cases, even where the painting is often of the very best, this principle has been neglected, and one and the same figurative representation runs through the whole set, without regard to corner, rim, bend or bowl, so that the general impression is at all events very confusing. Still more inappropriate does the treatment appear, in basins, vases, and jugs where figures and landscapes extend over handles and stoppers, so as not to be, even in the last mentioned case, continuous, an error which should be carefully avoided.

Nor was the second period of majolica manufacture, the period of its greatest perfection, free from this fault, nay it was especially tainted with it. The third period, that of its decline, beginning from about 1560, or 1570 is both in this and other respects less remarkable for faults than for excellences. It may be observed in general as the characteristic of the decline of majolica, that the painting is inferior, the design rougher and less artistic, the coloring paler and the general impression less striking; moreover the objects being less important receive more of the every day life and rural character and not unfrequently copy the Dutch copper-prints and etchings of that kind. Meanwhile the factories with their specialities diverge in other ways; at all events they become more numerous through the fact of artists and workmen abandoning the sinking factory of Urbino, and commencing new ones in other places. In the most flourishing period the productions of the great Ducal factories of Urbino, Casteldurante, and Pesaro are hardly to be distinguished from one another. Gubbio only preserved its special individuality through Maestro Giorgio. We may mention also Faenza, where the workmanship was for a long time exceedingly celebrated, and became so important as to give the name of *faïence* to this kind of ware. Some peculiarities were also attributed to it, though it is doubtful, as is generally the case in this branch of art, whether they belong to it alone. In Pesaro, the favourite specialities in majolica were reliefs and plastic objects, and in the year 1569 Giacomo Lanfranco obtained here a patent from Duke Guidobaldo II. for the application of gold on decorations, not after the manner of the metallic lustre of Gubbio, or of the mezza-majolica, but as on the porcelains of the present day. Such application of gold was however produced in other factories, e. g., in those of the Abruzzi.

These manufactories of Naples and the Abruzzi form, in the period of decadence and especially in the seventeenth century, an equally important group with those of Urbino, and an immense number of works have proceeded from them. With Naples, Castelli in the Abruzzi forms the centre of manufacture, and whole families of pottery painters settled here, viz., the Grues, Gentile, Capellati and Fuina. The works from these factories

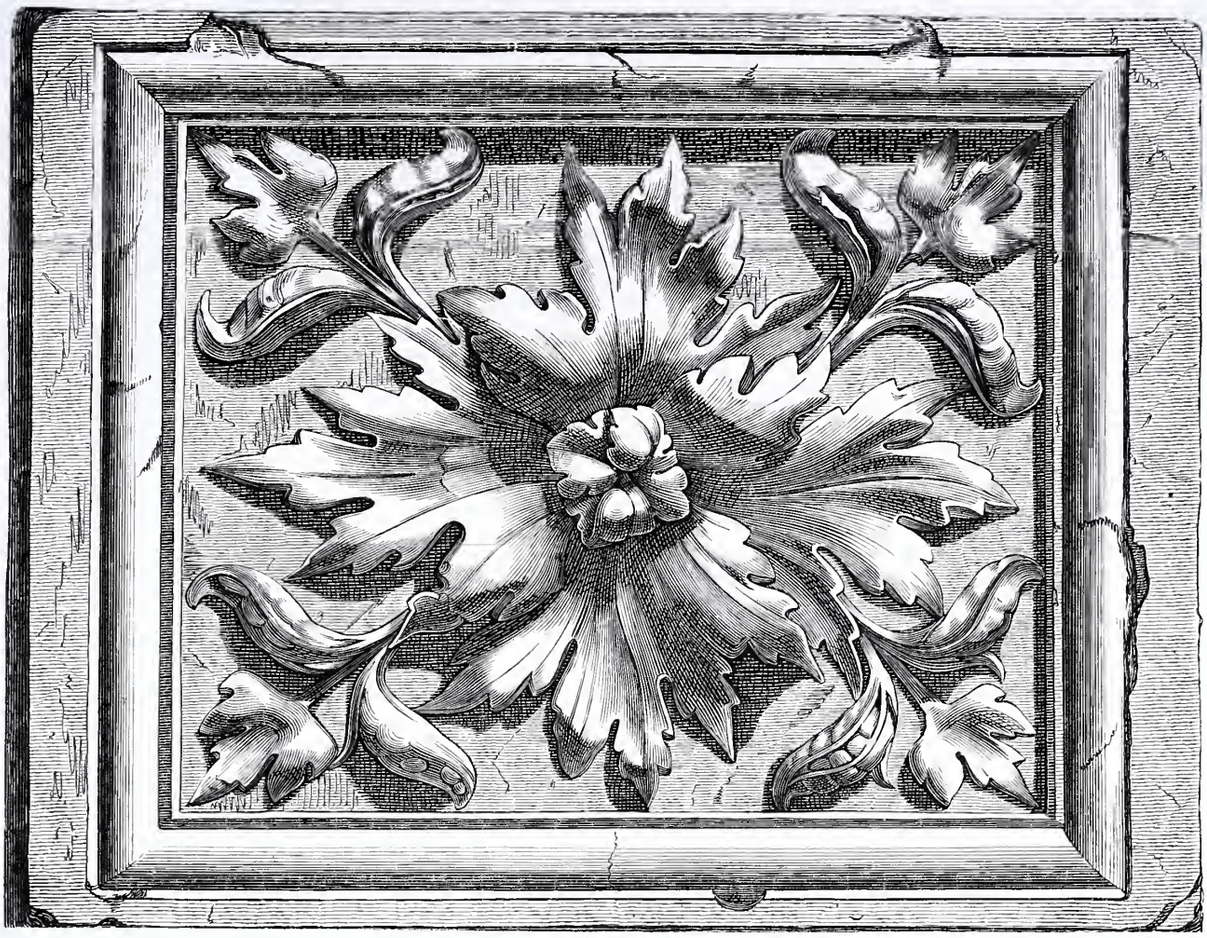
are weak in effect, pale and yellowish-green in color, but in other respects carefully made and not without a certain tastefulness; they represent, those of Pietro da Cortona especially, figurative scenes, landscape, allegories, hunting and sea pieces, animals and flowers. In 1740 there existed still four and forty factories of this kind; they afterwards however passed into crockery-ware factories *(faïence)* or like those of Capo di Monte in Naples, into porcelain establishments. Other factories were commenced in the period of decadence at Florence and other parts of Tuscany. Venice had also hers, though she was obliged to procure her material from Pesaro. The Venitian majolicas have this peculiarity that they are exceedingly light, and have a clear ringing sound. They have also very frequently a border with ornaments in relief, hollow underneath, so as to give them the appearence of being produced by impression. Genoa also had an important factory which however gave itself up entirely to the manufacture of crockery-ware or faïence, after the Franco-Dutch manner.

Such was indeed the fate of the whole majolica manufacture; it was compelled to give way everywhere to the glazed white earthenware, and so fell entirely into neglect. It is true that from the beginning of the sixteenth century there had been majolicas covered with white enamel, for in Urbino, Lucca della Robbia's tin glaze had been used, and with Raphael's arabesques had produced a fine and still highly esteemed article. But this was very different from the hard, thin and delicate Eastern porcelain, which was white and ringing and formed one solid mass with the enamel. The China-Japanese originals, many of which had been imported, were too costly to be practical rivals, but they called into existence, with the white earthenware which came from Holland, and was afterwards produced in great quantities in France, England, Germany and at last in Italy, an imitation which supplanted the genuine majolica in ordinary use, and entirely put a stop to its manufacture at the beginning of the eighteenth century, as the productions of that time were too bad for articles of luxury, and the rich dilettanti gave a most decided preference to the Oriental porcelain.

And thus the old and better executed pieces remained as antiques, partly as heirlooms, partly in cabinets and collections, partly passing as presents from one amateur to another, till we have at last seen the manufacture re-appear, first as forgeries and then as avowed imitations. The last exhibitions have shown us how excellently and to what extent this has succeeded. France, Belgium, Portugal, England, Sweden and Italy have all exhibited specimens in Paris in 1867. Till then it had been thought that at least the mother-of-pearl enamel of the mezza-majolica and the metallic lustre of Maestro Giorgio had remained a secret to the painters, but the manufactory of Doccia near Florence exhibited most successful examples of both, and the art is now completely recovered in every respect.

But if majolica manufacture is again to become a flourishing branch of Art-Industry, it must leap over its present point of mere imitation; it must lay hold of those peculiarities which are its rightful property, and at the same time assert the utmost possible independance in form and ornament, according to present requirements. For common use it can never again recover the position it once held in Italy; for porcelain by its greater lightness and purity, its hardness and resistance to heat, posesses such practical advantages that it cannot be banished from our tables. Majolica can only enter into competition with it, by its artistic qualities, the deeper and richer enamel of its colors, and altogether its appearance as an object of art even in its roughest execution. Consequently, however highly majolica may be esteemed, it will always remain an article of luxury and ornament only, but as such it will maintain its rightful position. Any other employment of it, as for drinking cups, for example, or Dinner services, can never be anything but a passing fashion, and can therefore never form a sound foundation for a branch of Art-Industry. In ornaments for the drawing-room, or for chests and cabinets, in certain cases also for the table, for flower vases, small fountains and many other garden ornaments, it will find its appropriate use, and its re-appearance in such a guise will be hailed with a joyful welcome.

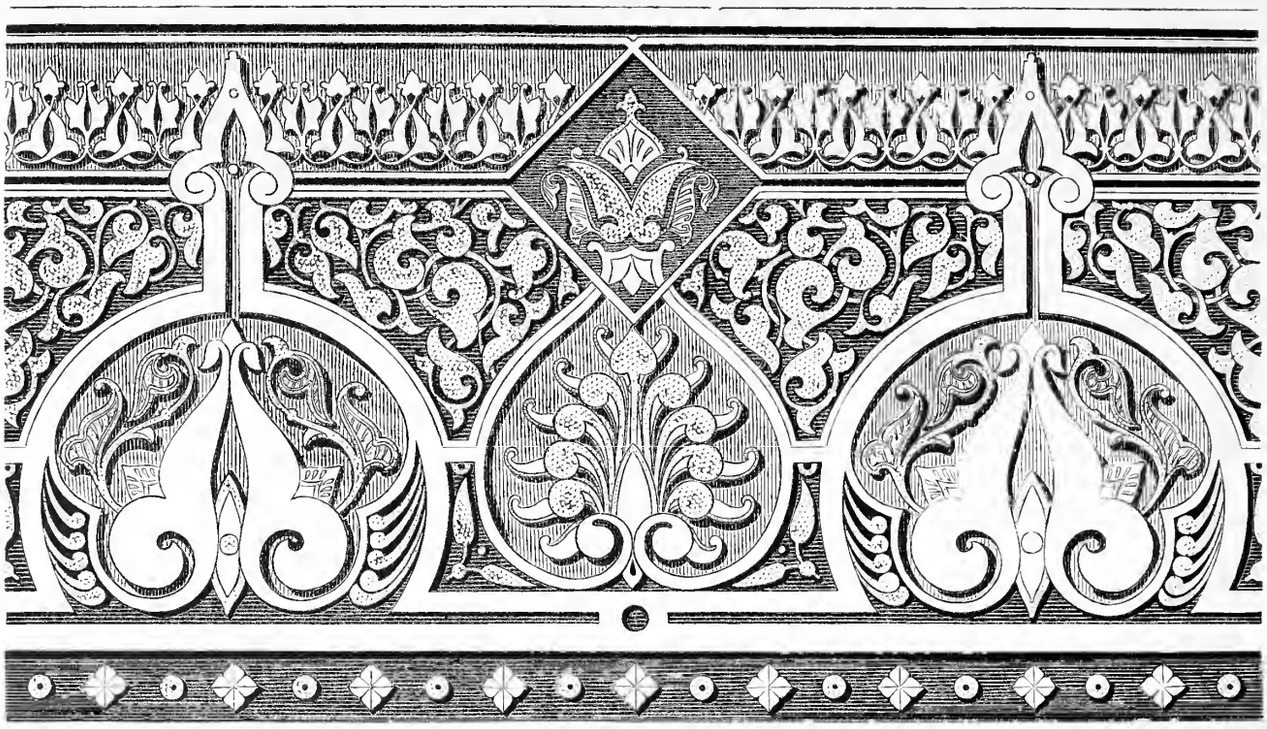
Specimens of Ornamentation.



No. 1.

No. 2.

No. 1. Renaissance Style. Panel Ornament of Doorway from St. Eustache Church, Paris.
No. 2. Modern Work. Panel Ornament in the Vestibule of the *Ostbahn* Station, Berlin.

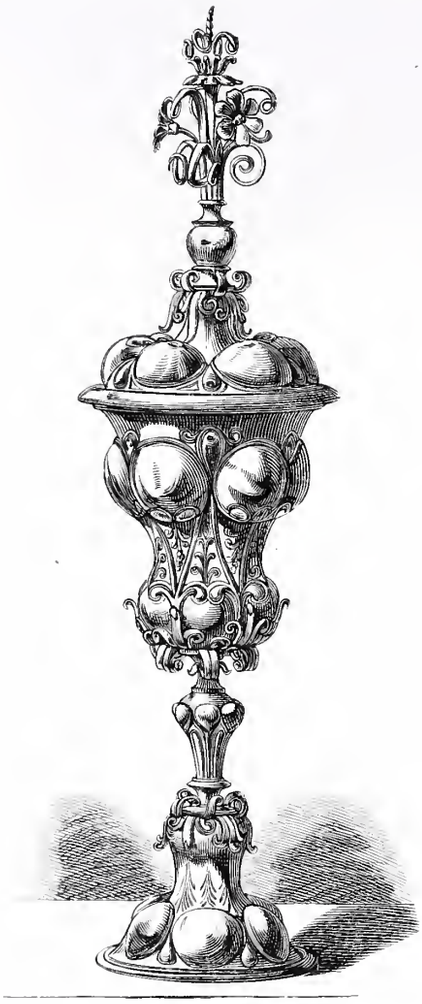


No. 3.

No. 4.

Nos. 3 and 4. Moresque Frieze and Diaper.
Ornament gold with white and gray, ground alternately blue and vermillion.

No. 5. Diaper of Altar-piece in St. Laurence Chapel, Rottweil, Germany. End of fifteenth century.
1/3 real size.



No. 6.

No. 7.

No. 8.

No. 9.

No. 10.

Nos. 6—15. Silver Vessels lately discovered at Ratisbon, mostly gilt and dating from the end of the sixteenth and beginning of seventeenth century; from photographs of J. G. Bœssenecker, Ratisbon.

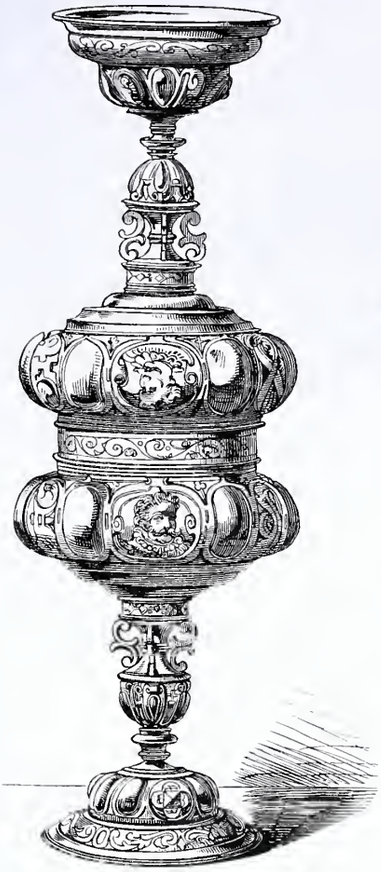
No. 6. Embossed Cup marked N, the lid surmounted by a flower bouquet.

No. 7. Cup showing the Ratisbon arms.

No. 8. Cup, enriched with five figures of foot-soldiers decorating lid and body. Height 35 cm.

Nos. 9 and 10. Tankards with the silvermark M S.

No. 9, 23½ cm., No. 10, 15 cm. in height, the latter probably Augsburg work.



No. 11.

No. 12.

No. 13.

No. 14.

No. 15.

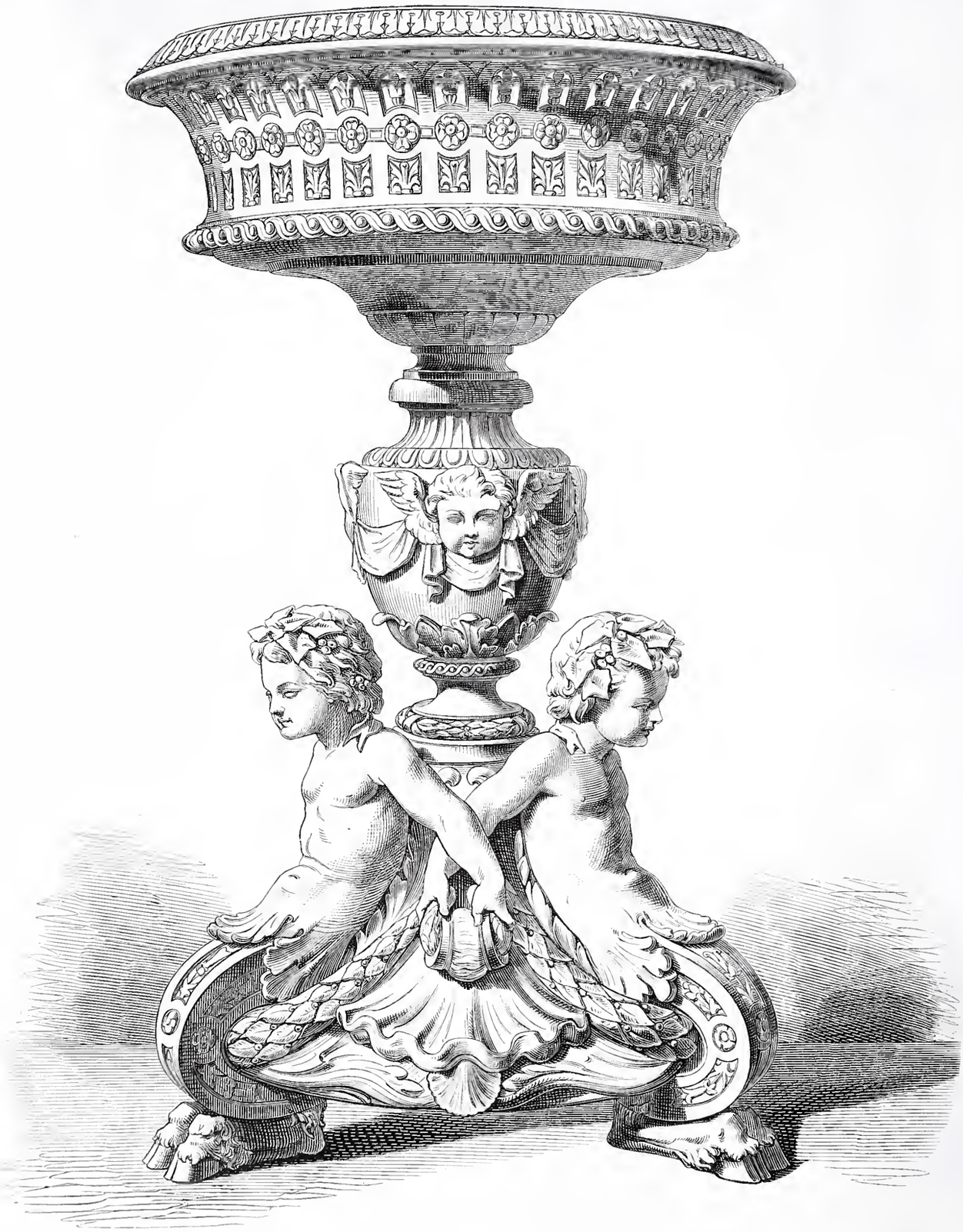
No. 11. Double Cup. 20 cm. high.

No. 12. Richly embossed Cup, lid surmounted by a knight with a shield showing the letters S K and a rampant lion. Height 48 cm.

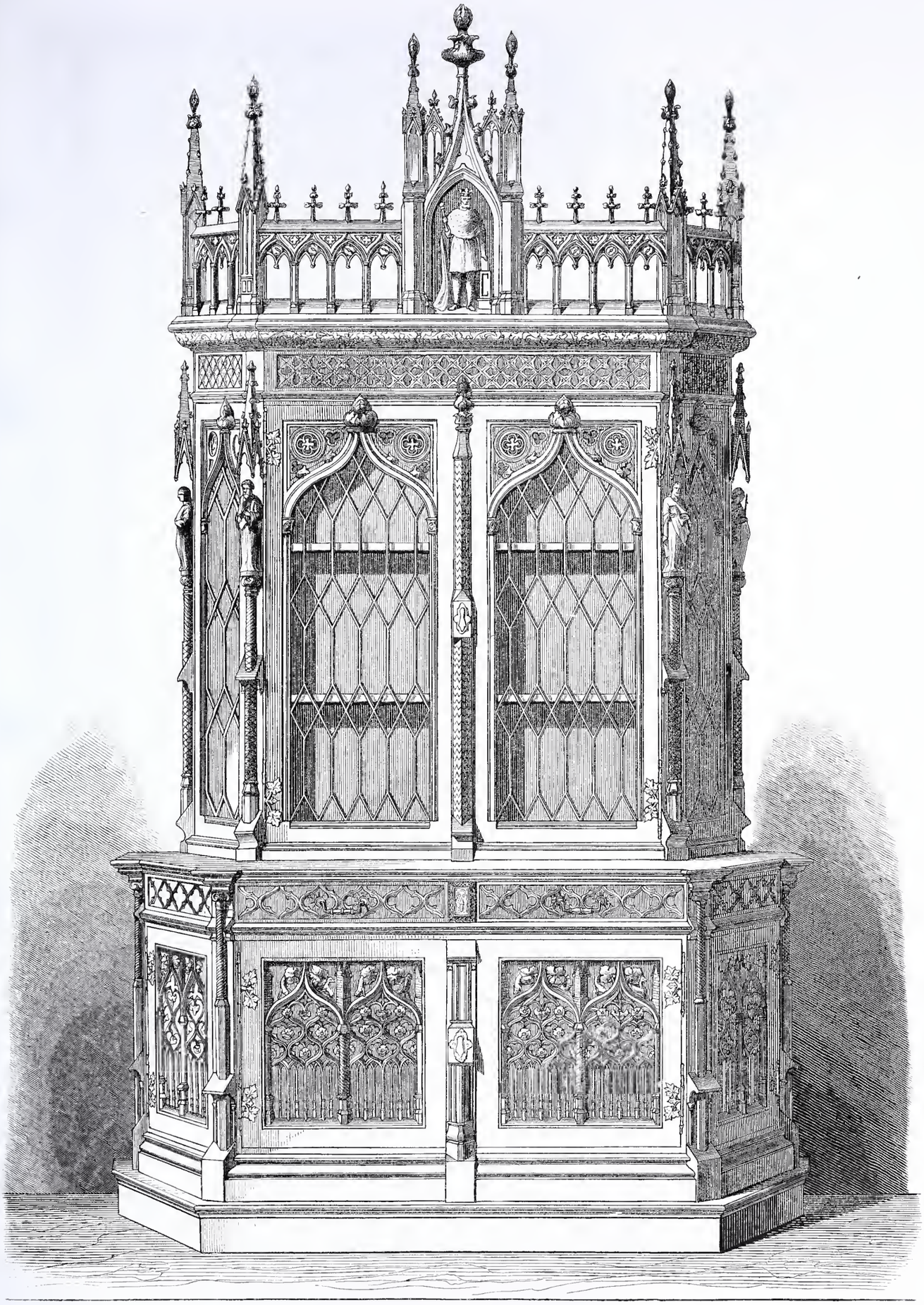
No. 13. Embossed Cup, 22 cm. high; lid missing.

No. 14. Small Tankard, probably Augsburg work. The bottom besides the arms marked with the inscription *Ursula der Gotl. Kandl.*

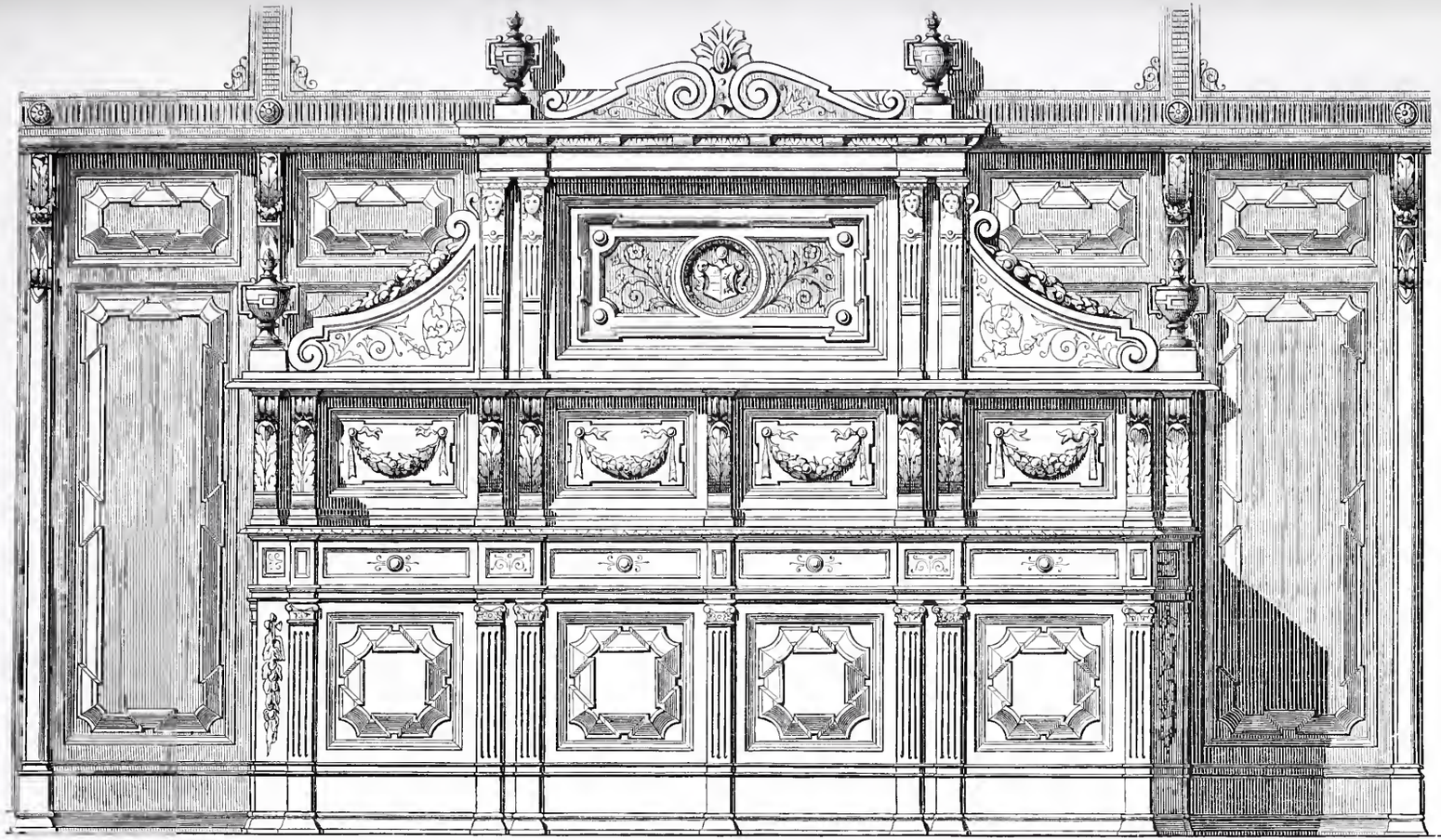
No. 15. Tankard, with the arms of William Acker and the date 1590, a Ferdinand's florin from the year 1541 being let into the flat lid. Height 34 cm.



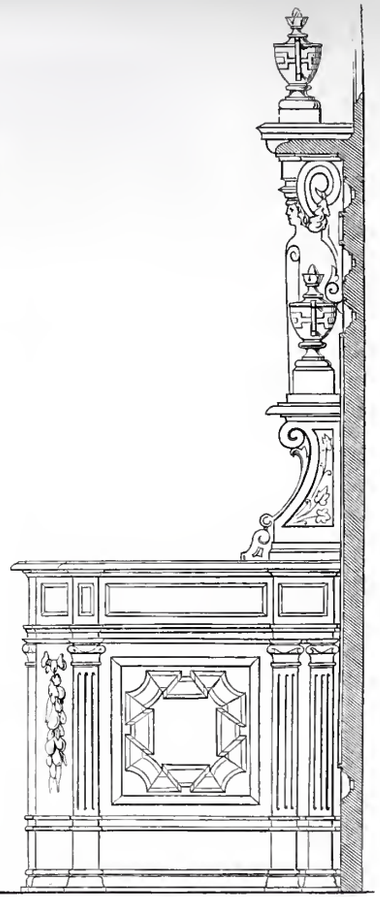
No. 16. Majolica Flower Basket; height 86 cm. width 52 cm. Messrs. Minton and Co., Stoke upon Trent.



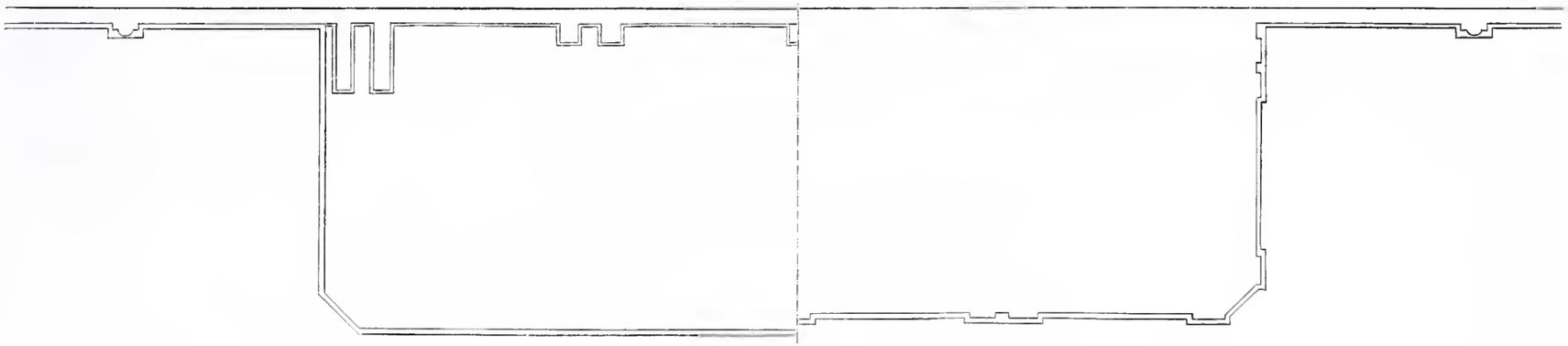
No. 17. Walnut Cabinet, designed in fifteenth century Gothic. Executed by M. Ch. Muré, Paris. Doors and drawers open with one turn of the key, the iron work is wrought from hand. In the Paris Exhibition of 1867.



No. 18.



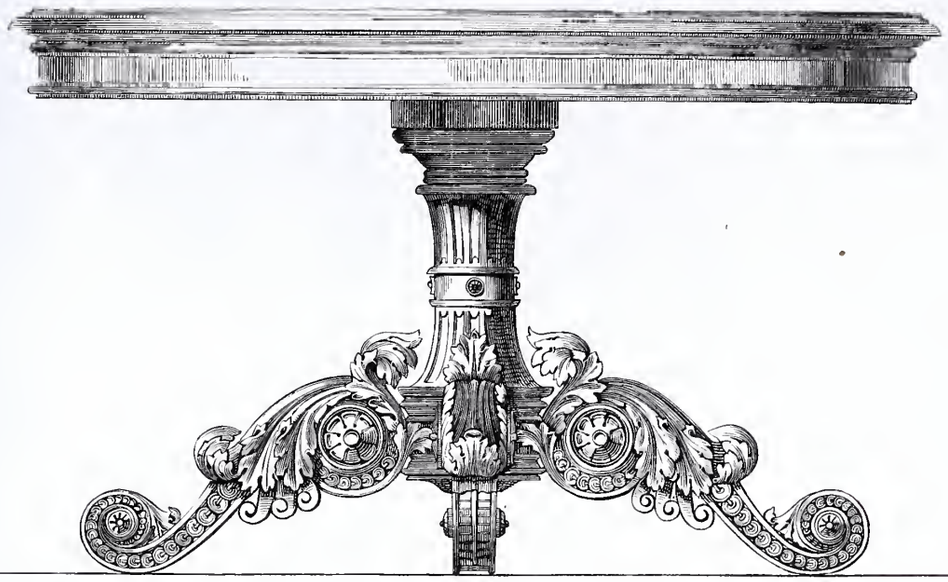
No. 19.



No 20.

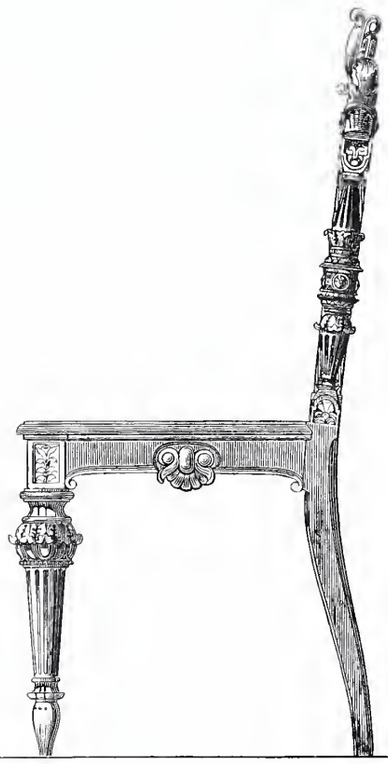
Nos. 18—20. Oak Buffet and Wainscot. Mr. Daniel, Archt., Schwerin.

Capitals, consoles, some mouldings of Hermæ, vases and upper part, also ground between framework and panels stained dark, the remainder showing the natural *mat* color of the wood. Walls above the wainscot enriched with Gobelins hangings in oak frames. For details see Supplement Nos. 4 and 5.



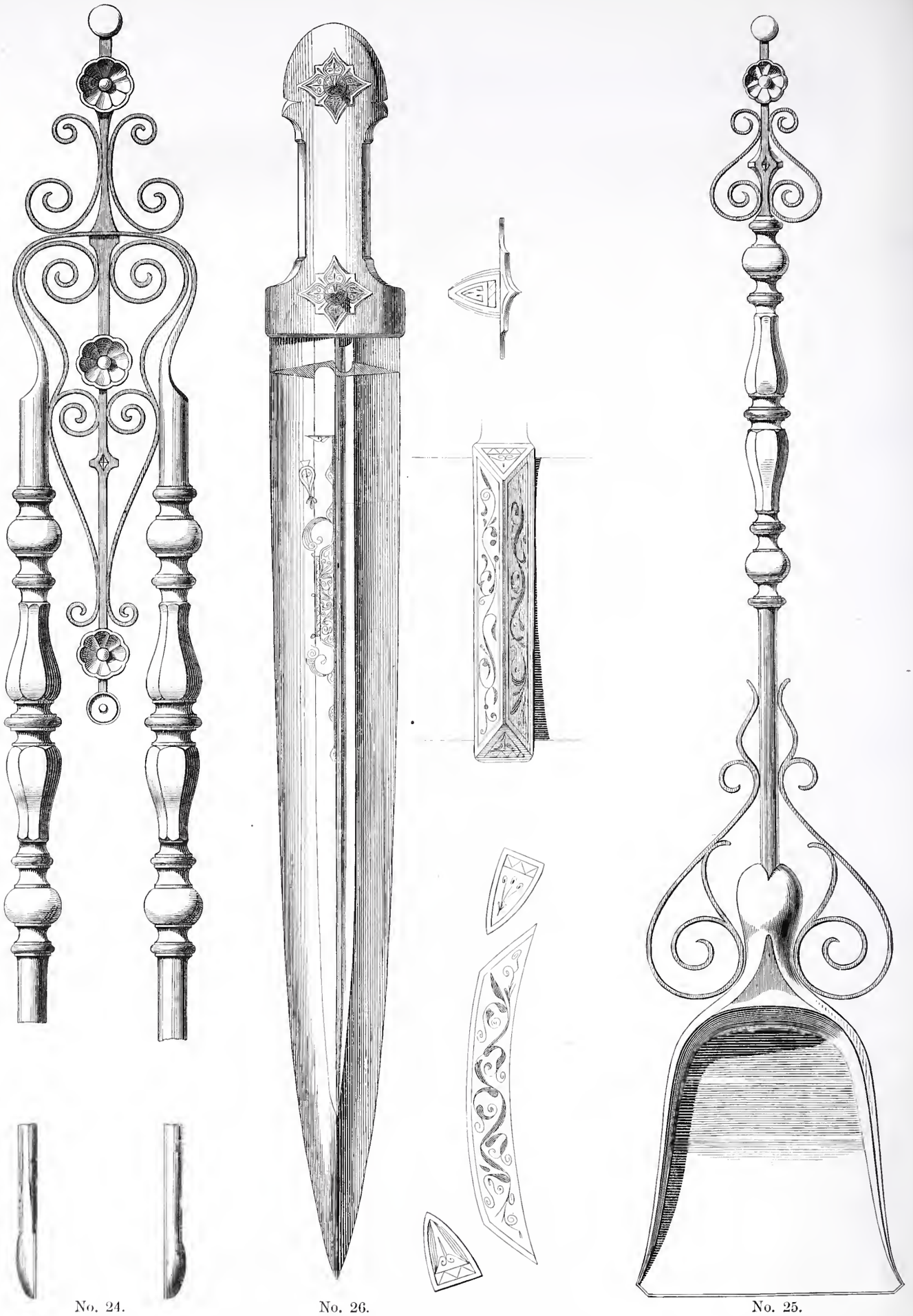
No. 21.

No. 22.



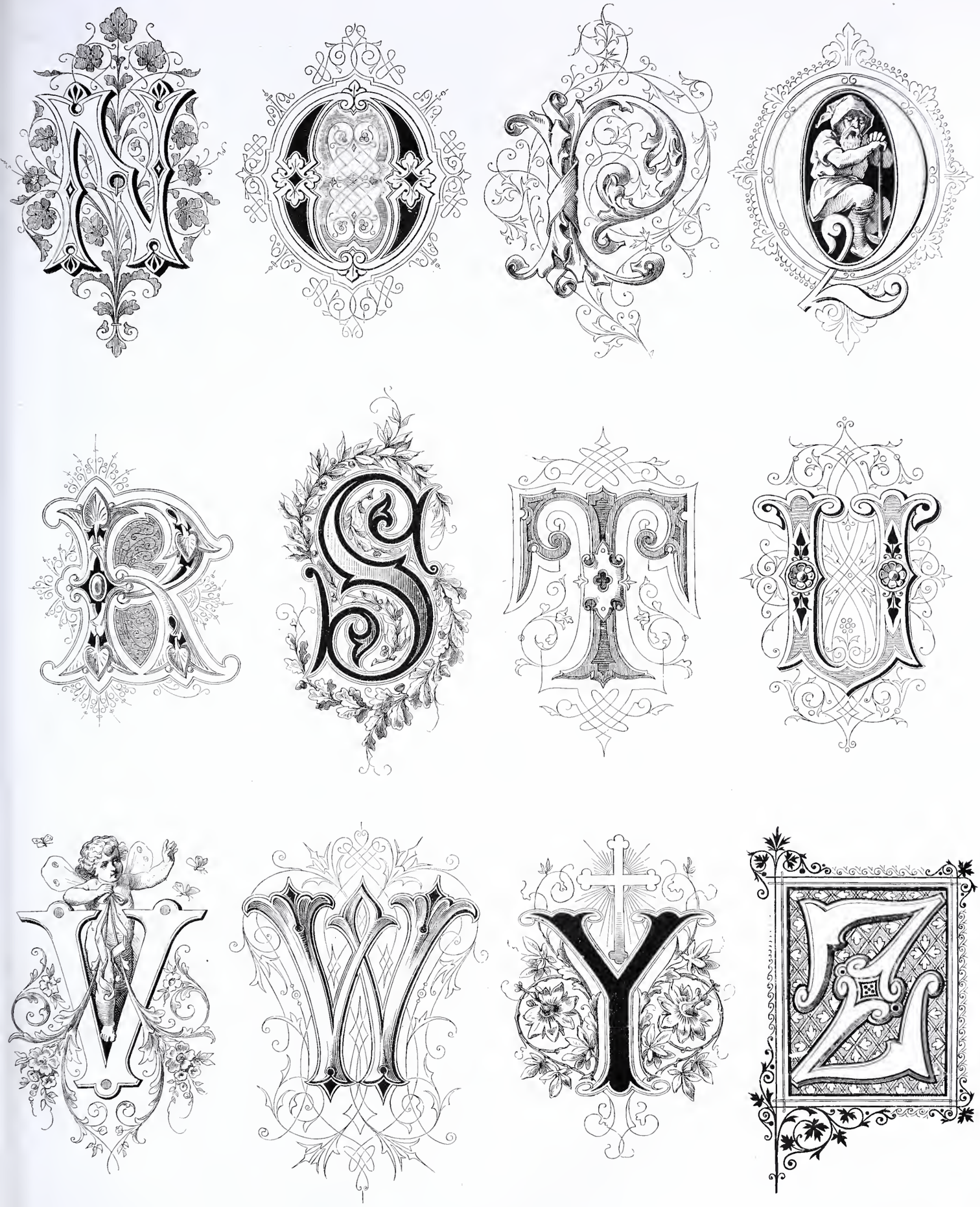
No. 23.

Nos. 21—23. Dining-Room Furniture. Expanding Dining Table and Chair; 1/10 full size, executed in Italian Walnut from the designs of Mr. G. Kachel, Archt. by Mr. G. Stœvesandt, Carlsruhe.
For full-size details see Supplement Nos. 1—3.



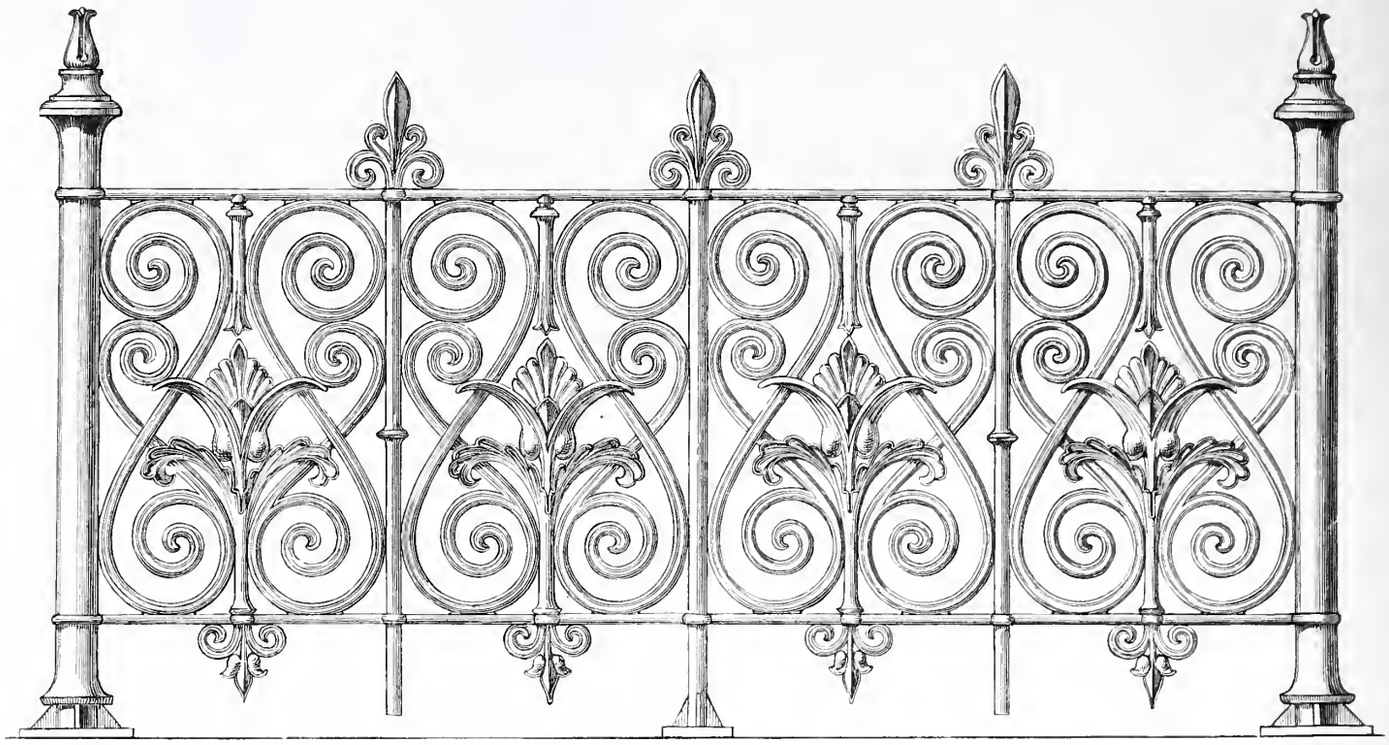
No. 24. No. 26. No. 25.

Nos. 24 and 25. Fireirons in polished steel. From the designs of M. Paul Bénard, Archt. by M. Ch. Muré, Paris.
No. 26. Circassian Knife, ½ real size; with details of ring of sheath.
Drawn from nature by M. Paul Bénard, Archt., Paris. Ivory hilt with ornamental metal nails; filigraned gold ornament hammered into polished steel; a *technique* much in use during the sixteenth century, at present chiefly exercised in Russia.



Nos. 27—38. Ornamented Initials. M. J. Schnorr, Artist, Stuttgart.

For first half of Alphabet see Part 21 of the Workshop.



No. 39. Design of Balkonet for the new Market Hall in Berlin.
By Mr. Hitzig, Archt.

VARIOUS.

How to bleach Ivory.

A process for bleaching ivory is given by Dr. Artus. He specially mentions the application to ivory plates for pianoforte keys; but it will of course be applicable to all articles of the material, which is so liable to acquire a disagreable dark colour. The articles are first to be soaked in a solution of carbonate of soda (half a pound of the crystals to two pounds of water) for a couple of days. They are then to be well rinsed with clean water and afterwards transferred to a solution of three-quarters of a pound of sulphite of soda in two pounds of water, in which they must remain for five or six hours. Then, without removing the ivory, a mixture of one ounce of hydrochloric acid and four ounces of water is to be added, the whole is to be stirred together and the vessel covered up and left for thirty-six hours. At the end of this time, the solution is poured off and the ivory is to be well washed with water. If it should not have the desired whiteness the process may be repeated. The proportions of solutions we have given above will suffice to bleach a pound of ivory.

Encaustic Tiles.

A novelty in the manufacture of encaustic and other ornamental tiles has just been brought to our notice by the Architectural Pottery Company. The patterns, which have hitherto been inlaid in self colors, have in this process been produced by an admixture of colored materials very finely prepared, which give the appearance of inlaying of granites and Florentine mosaics, according to the combinations of colors used, and may also be applied either in the ornament or as a ground. This contrast of colored ornament against the ground has a pleasing effect, and is capable of introduction in elaborate ornamentation. We are at the same time assured that this new process intensifies the hardness of the surface, rendering the pavement still more durable. We were pleased with the specimens we have seen of the patent encaustic tiles produced by the same manufacturers. The ornament is more deeply inlaid than is customary on this description of manufacture, and the outlines are symmetrical.

The Builder.

Phototype.

We have seen, at 65, Hatton Garden, examples of a process to which the name of phototype is given, and by means of which it is proposed to supply cuts and plates for book illustration. It is based, as its name implies, on photography, the commencement of the process being a photographic plate either from a print or drawing. From this photograph, after the employment of certain intermediate means, a raised printing-surface is obtained by the agency of the electrotype. The examples shown us were reproductions of copper-plate engravings, woodcuts, and line drawings. The process in worked by a company, called the Phototype Company, who also produce photo-lithographic plates.

The Art-Journal.

Indian Architecture.

The Government of India has made arrangements for having a cast taken of the principal remaining gateway of the Sanchi Tope, near Bhilsa, with a view of having produced several copies of this work, the date of which is supposed to be about 250 B. C. It it the most elaborate work of sculpture existing in India.

The Workshop

A Monthly Journal, devoted to Progress of the Useful Arts

EDITED BY

PROF. W. BAUMER, I. SCHNORR AND OTHERS.

VOL. I. No. 23.

DECORATIVE TREATMENT OF FRAMES, WINDOWS AND PANELS.

Any picture, whether oil or water-color painting, engraving or photograph, will either be greatly enhanced or materially injured by the frame which surrounds it. Mouldings, ornaments, the form and proportion of the frame will alike contribute towards making the picture, independently of its artistic value, appear more or less effective, according to the design and style of the work; just as a room will appear higher or lower according to the decorative treatment of the ceiling, walls and floor, which enclose it.

What has been said of pictures will also apply to any framed and panelled work and, in a certain sense, to doors and windows. For it is certainly not only the form and proportion of the opening, but also the treatment of the architectural frame of doors and windows which impart either grace, elegance and life, or repose, breadth and strength to the work. They mark the character of the whole building as well by the proportion of the number and size of openings to the massive walls, as by the structure and decoration of their frame.

But however true and important may be these principles, they are but too often infringed, because misunderstood, or not understood at all. Wherever we look, in picture and mirror frames, in panels and windows both in exterior and interior decoration, nay also, so far as they bear upon our subject, in the mounting and setting of fancy articles and objects for personal use, we find numerous aberrations from these rules, owing to a deficiency of thought and understanding. This is the cause of so many inappropriate lines and forms, an injudicious application of mouldings, and an illegitimate and overcharged ornament and gilding, which we observe so often in works of this kind, and if we try hereafter to establish the leading features for the decorative treatment of frames, panels, windows, etc., we do so in order to counteract the swaying influence of ever-varying fashion, and to hold high in their place the dictates of common sense and good taste in art.

Whatever sort of frame we may consider, whether rich or simple, picture or mirror frame, whether made by the stone-cutter, cabinet maker or decorator, whether dating from the ancient Grecian, Roman, Mediæval, or Renaissance period, we find some points of similarity amongst all, some general principles from which we cannot depart.

The frame, serving the purpose to enclose and border some object, has naturally its characteristic importance not in itself alone, but rather in the enclosed work with which it is to produce a harmonious effect; in like manner as the handle, foot and lid of a well designed vase complete and relieve the bulbed part of the vessel. According to the above notion it must indeed be wrong to set off an insignificant or worthless picture by an overpowering richness of frame. It must on no account attract the eye in any illegitimate way thereby destroying the effect of general harmony and repose. The frame marks the picture or ornamental panel which strikes our eye, just as the window of our

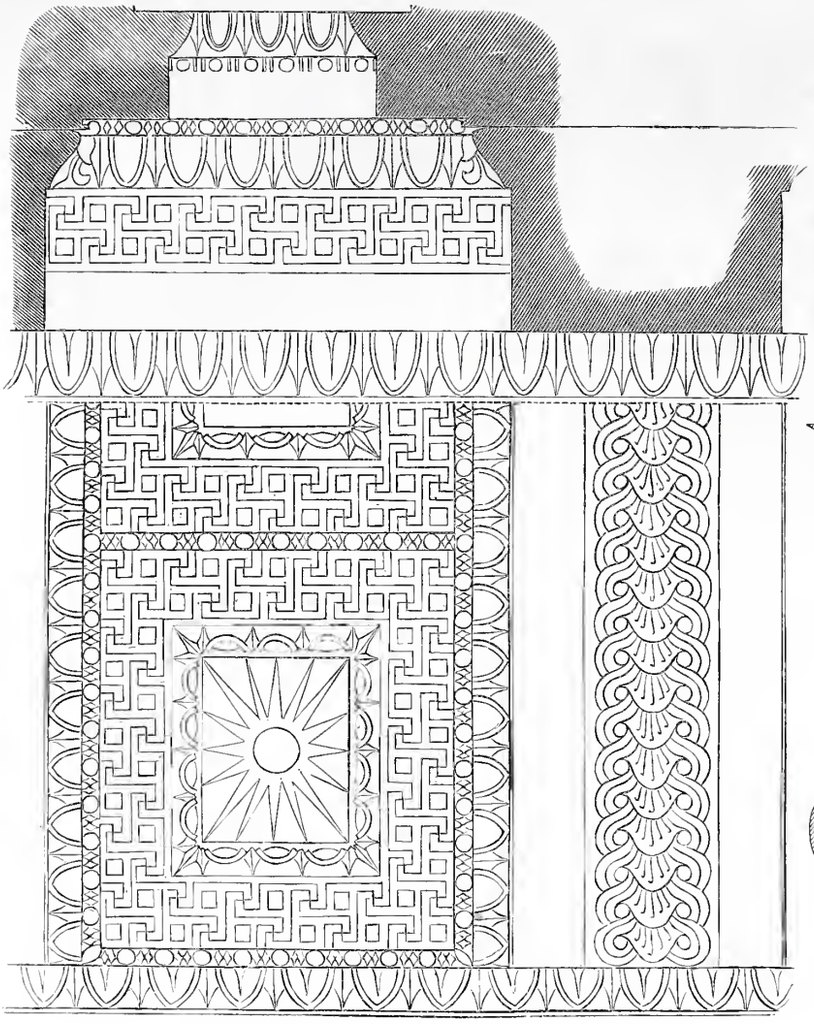


Fig. 1. Grecian Coffered Ceiling.

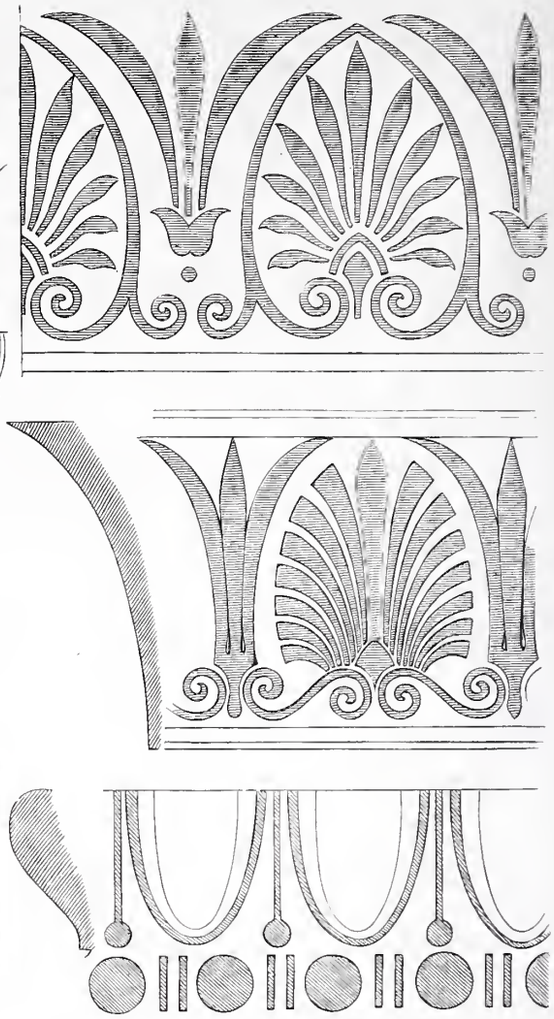


Fig. 2.

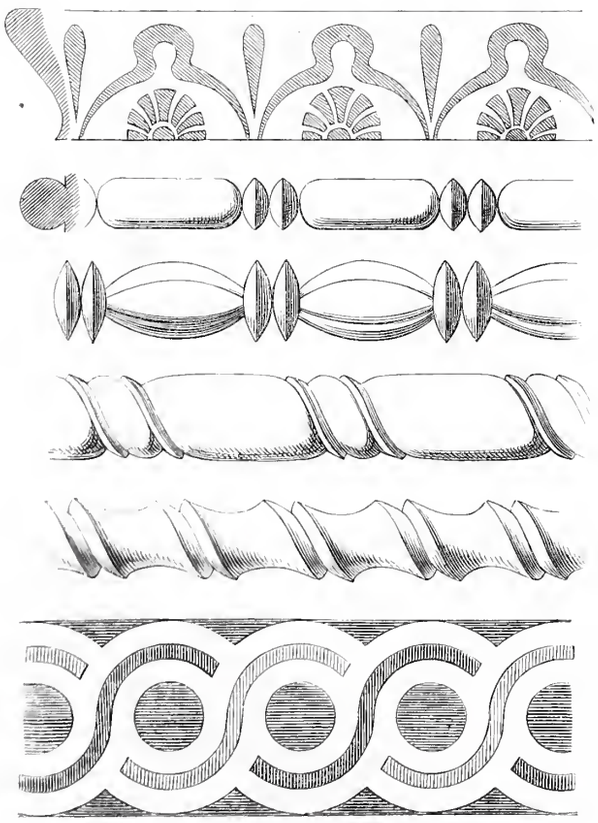


Fig. 2.

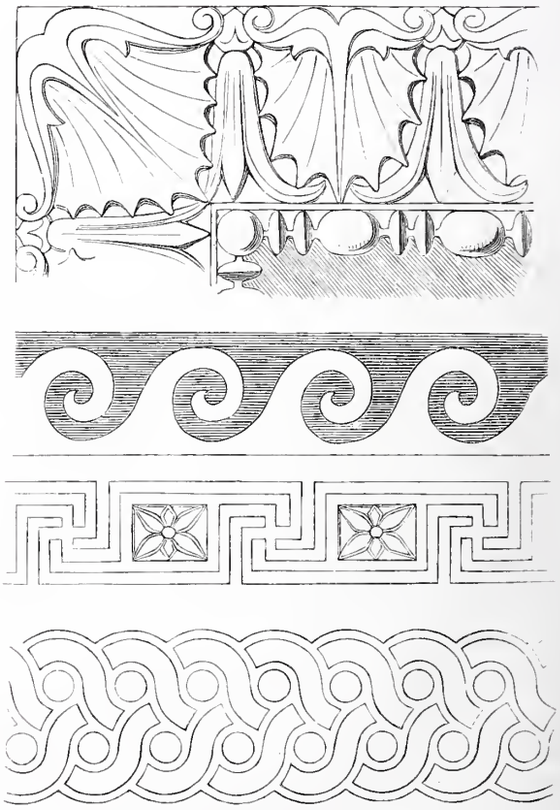


Fig. 2.

room encases the landscape outside. Picture or panel must recede from or be sunk in the frame-work either by means of the mouldings, by the effect of color, or by both together.

With reference to color it may generally be right to give to the frame or border a decided and light color and to choose for the ground of the panel, if not subject to other considerations, an airy, neutral tint from which figures and ornaments stand out very well as shown by numerous examples. But if the frame is white, or of bright metal, or hard polished wood, yellow and red may advantageously be used for the ground of the panel.

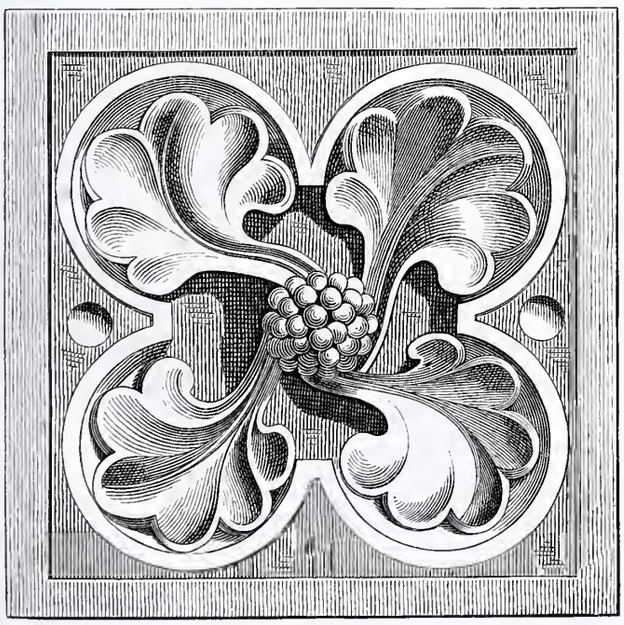
As for the mouldings and ornamentation of architectural frame-work, we give in fig. 1, a Grecian coffered ceiling, which is a typical example for ceiling decoration of all periods. We have here a series of bands, mouldings and supporting members for the coffered ceiling, or, considered in another point of view, a combination of frames for the panelling. Independently of the characteristic expression of supporting the roof, exhibited by these beams in form and decoration, they mark also by their intersections the sunk panels or coffers, and we are therefore perfectly authorized to employ all the running, conventional ornament, typical of bands and border patterns, such as frets, meanders, etc., in short all those decorative motives which, originally borrowed from textile fabrics and embroideries, have been imported by the ancient Greeks and Romans to be ever since employed in monumental and industrial art.

It will not be forgotten however that this ornament, surrounding and bordering the panel in parallel bands, must diverge from the centre, the egg and dart ornament, leaves and other enriched mouldings being set with the ends towards the centre and never the reverse. *(Fig. 2 and detail A of Supplement.)* The same is true with regard to cornerpieces, clasps and other ornamental features which may enrich prominent parts of the frame. Especially figures, representations of animals etc., if combined with the conventional ornament and enriched mouldings of the frame-work must always stand upright.

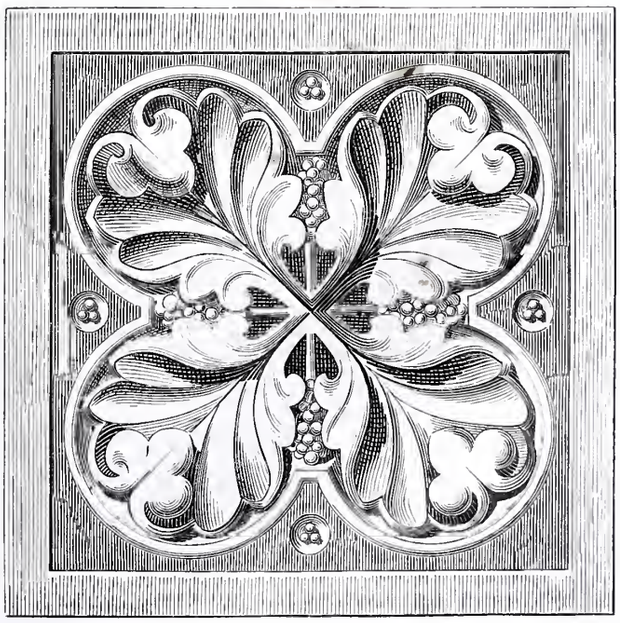
In addition to the foregoing remarks, and before considering the form of the frame, we may point out, that the more the eye is led to the contemplation of the panelled or framed work, the more this will show the effect of a picture, the better and the more successful will be the frame itself.

The conclusion in our next.

Specimens of Ornamentation.

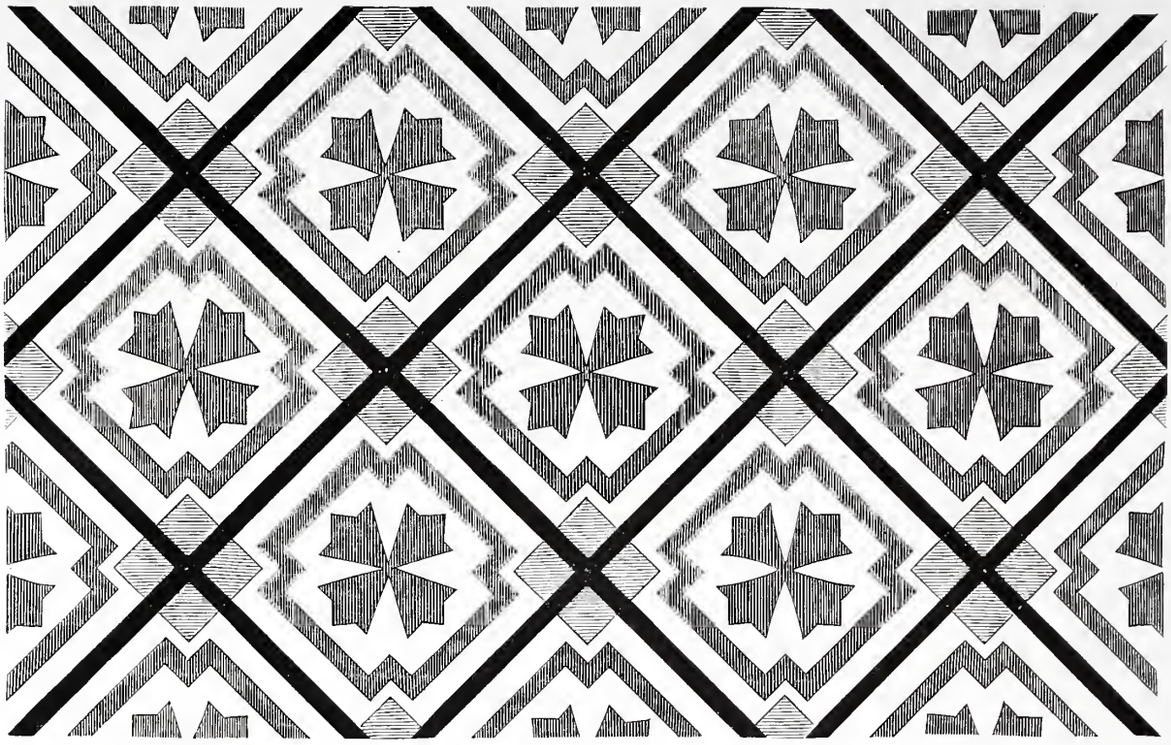


No. 1.

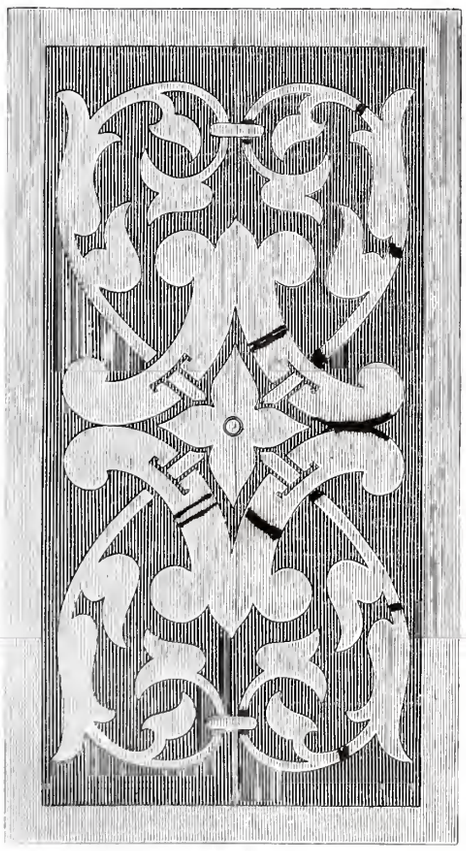


No. 2.

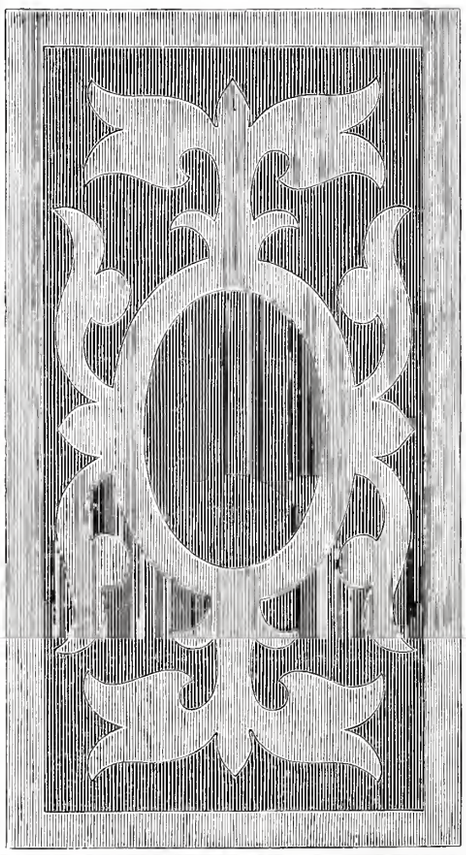
Nos. 1 and 2. Romanesque Style. Panels from the Porch of Seez Cathedral. Thirteenth century.



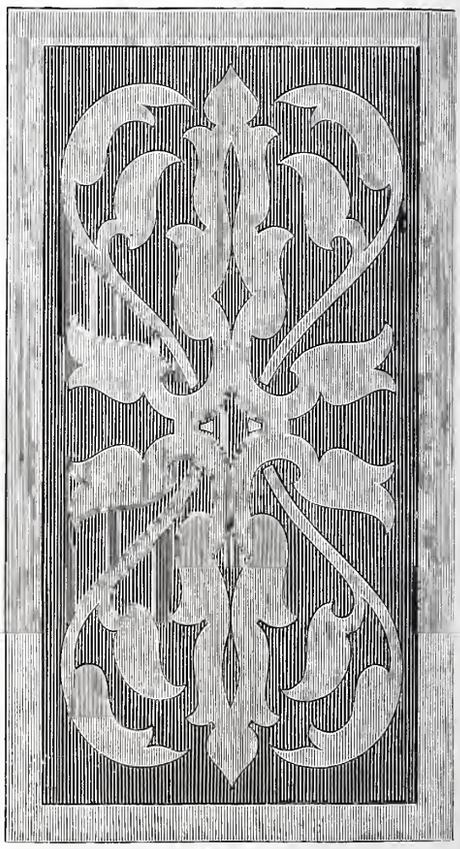
No. 3.



No. 4.



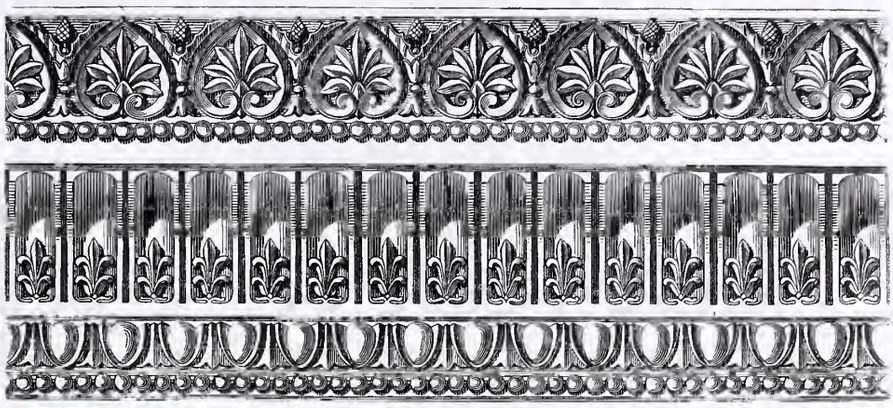
No. 5.



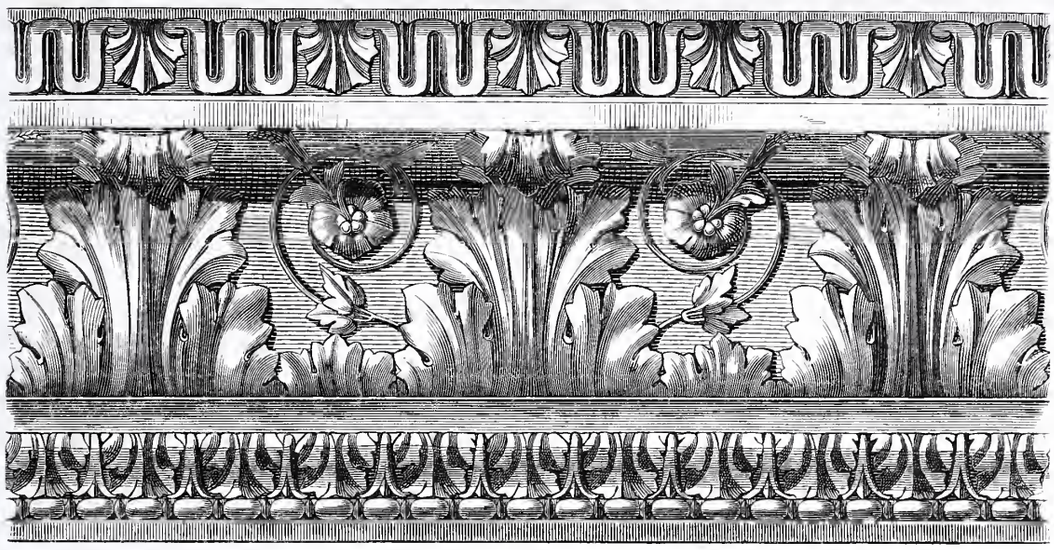
No. 6.

No. 3. Diaper from a Painting by H. Burkmaier, 1450—1501.
Black stripes with gold squares at their intersections, red-brown pattern on silver ground.

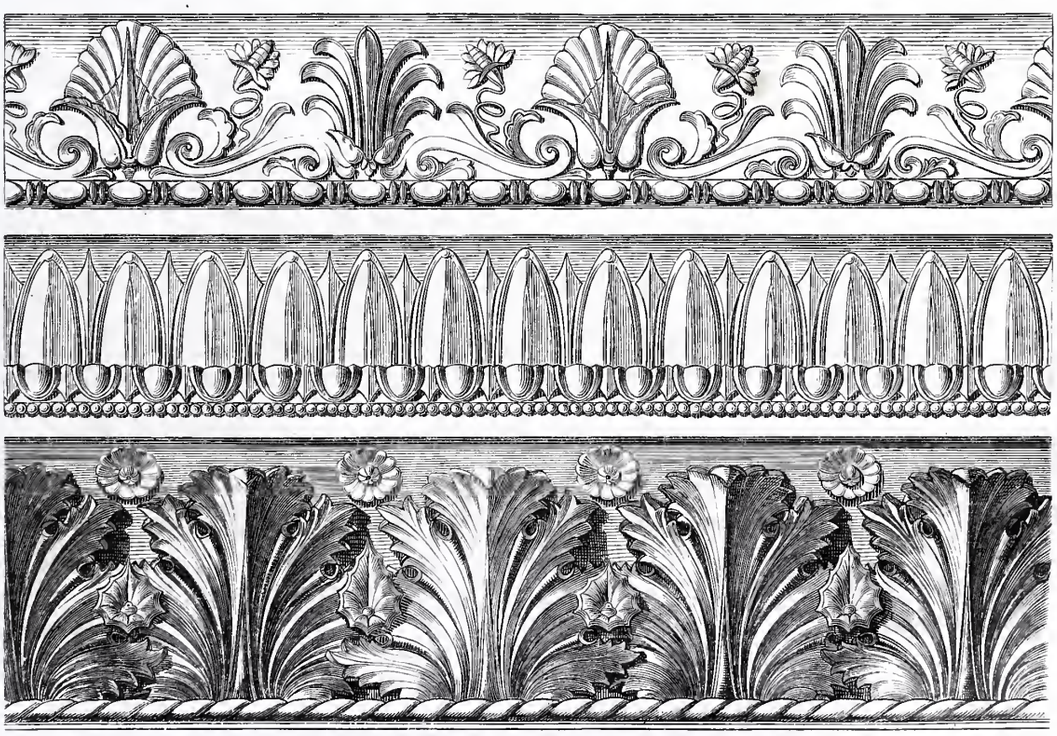
Nos. 4—6. Renaissance Style. Sixteenth century. Panel Ornaments from the Sepulchral Monuments of the Counts of Würtemberg in the *Stiftskirche*, Stuttgart.



No. 7.

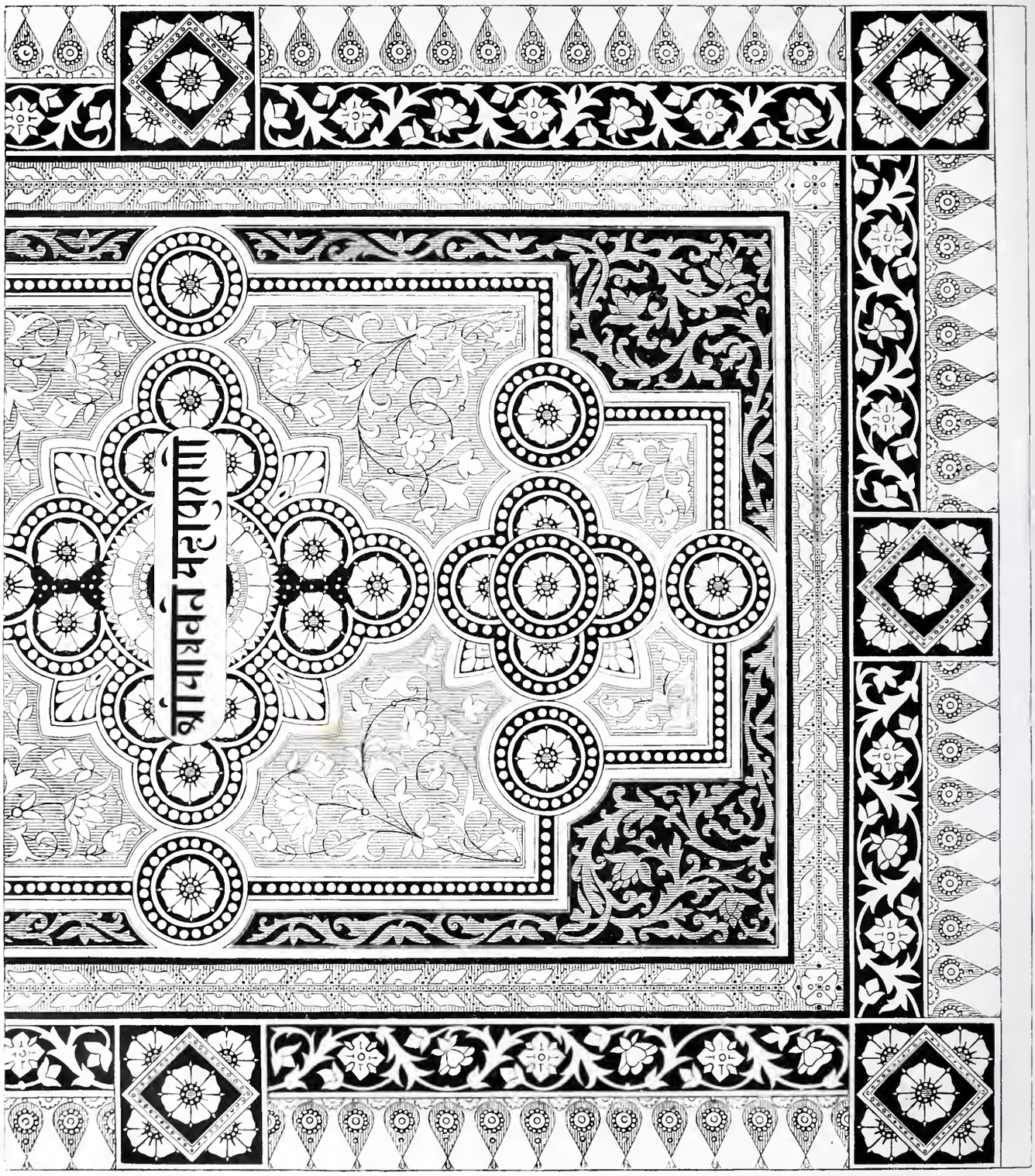


No. 8.

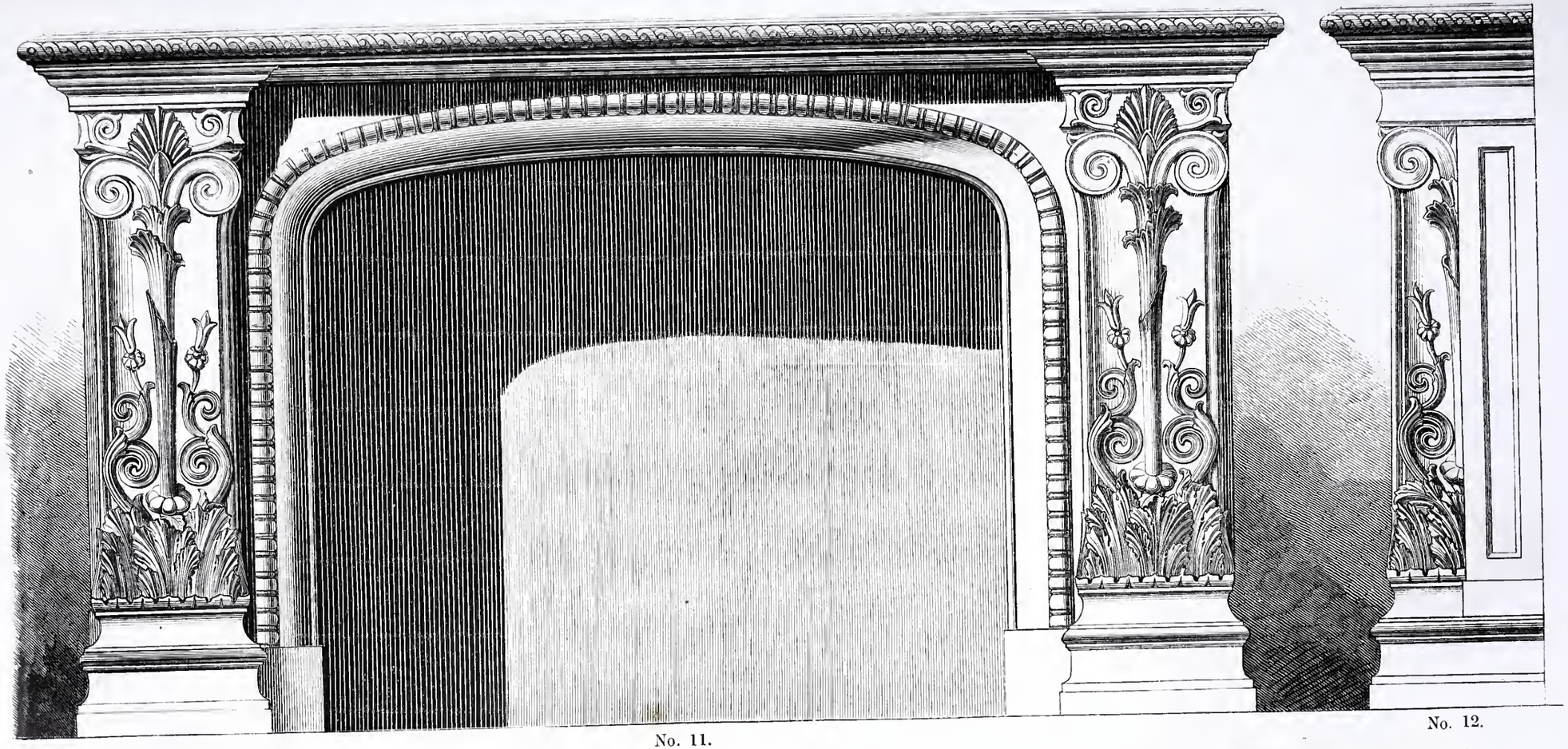


No. 9.

Nos. 7—9. Modern Cornices for Interior Decoration. Mr. Ch. Lehr, Sculptor, Berlin.

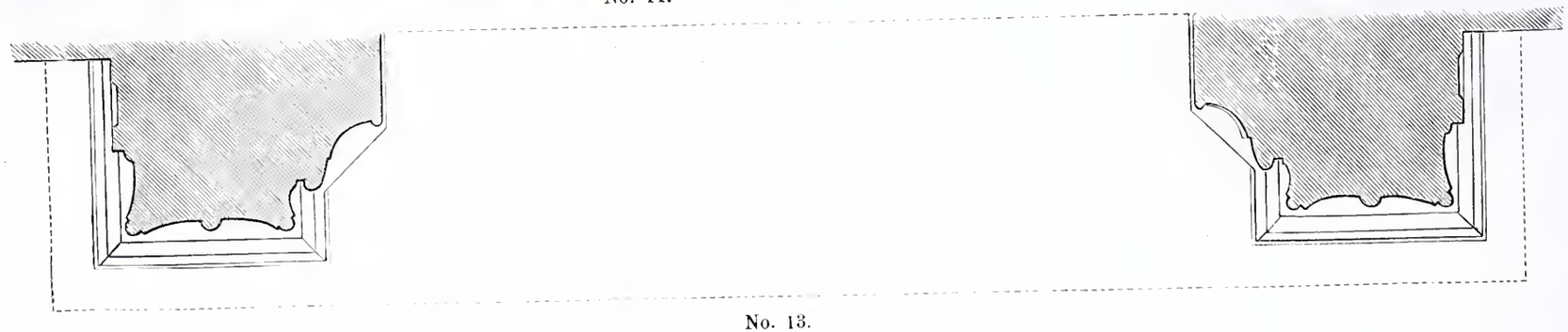


No. 10. Modern Moresque Panel. M. Clerget, Artist, Paris.



No. 11.

No. 12.



No. 13.

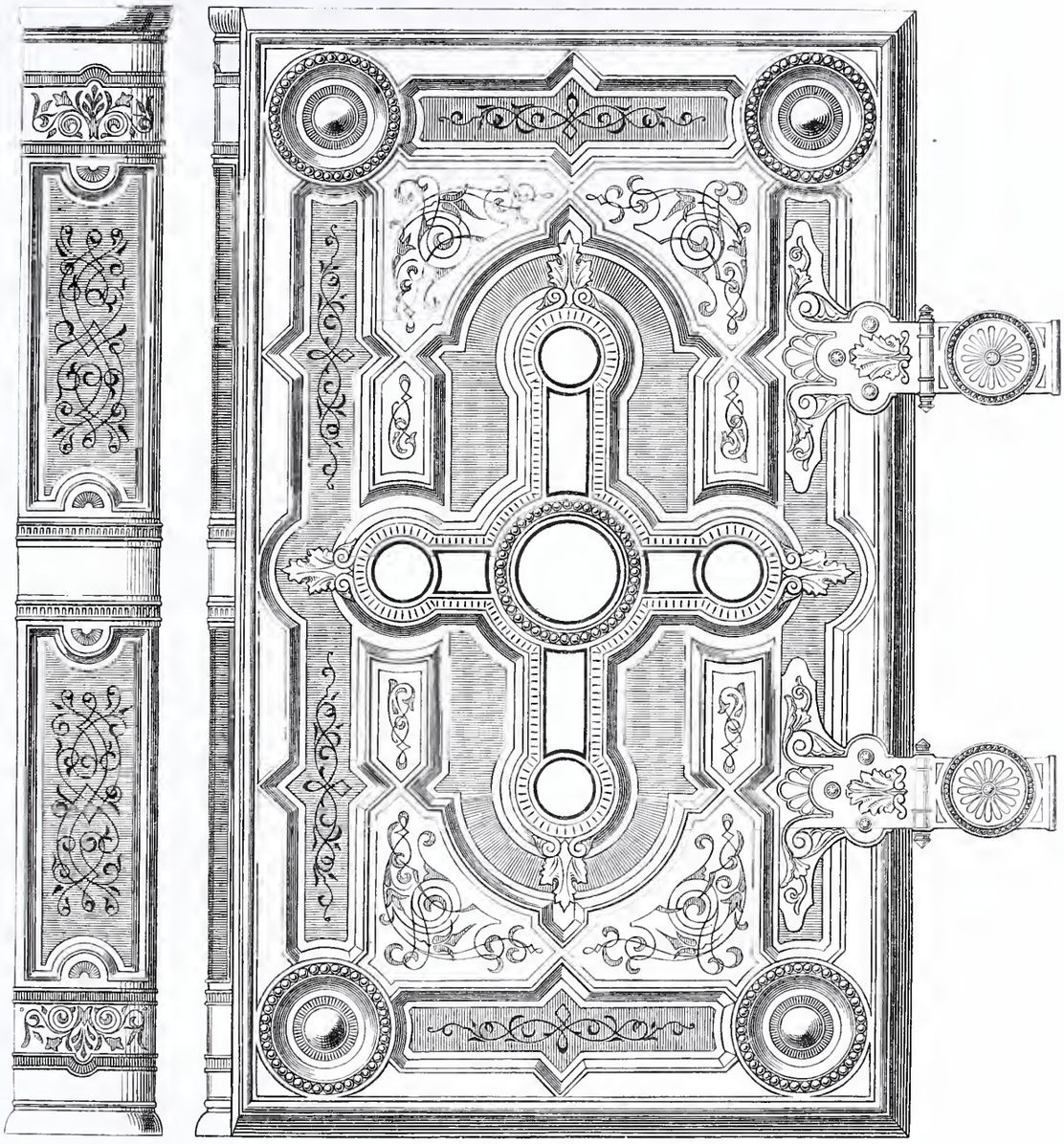
Nos. 11—13. Design of a Chimney-Piece by the late Professor Cockerell, R. A. London.
For full-size details see No. 1 of Supplement.

No. 14. No. 15. No. 16.

Nos. 14—20. Silver Church Vessels, designed in the style of Italian Renaissance by Mr. Valentin Teirich, Archt., Vienna. No. 14. Burette. No. 15. Processional Cross. No. 16. Chalice.

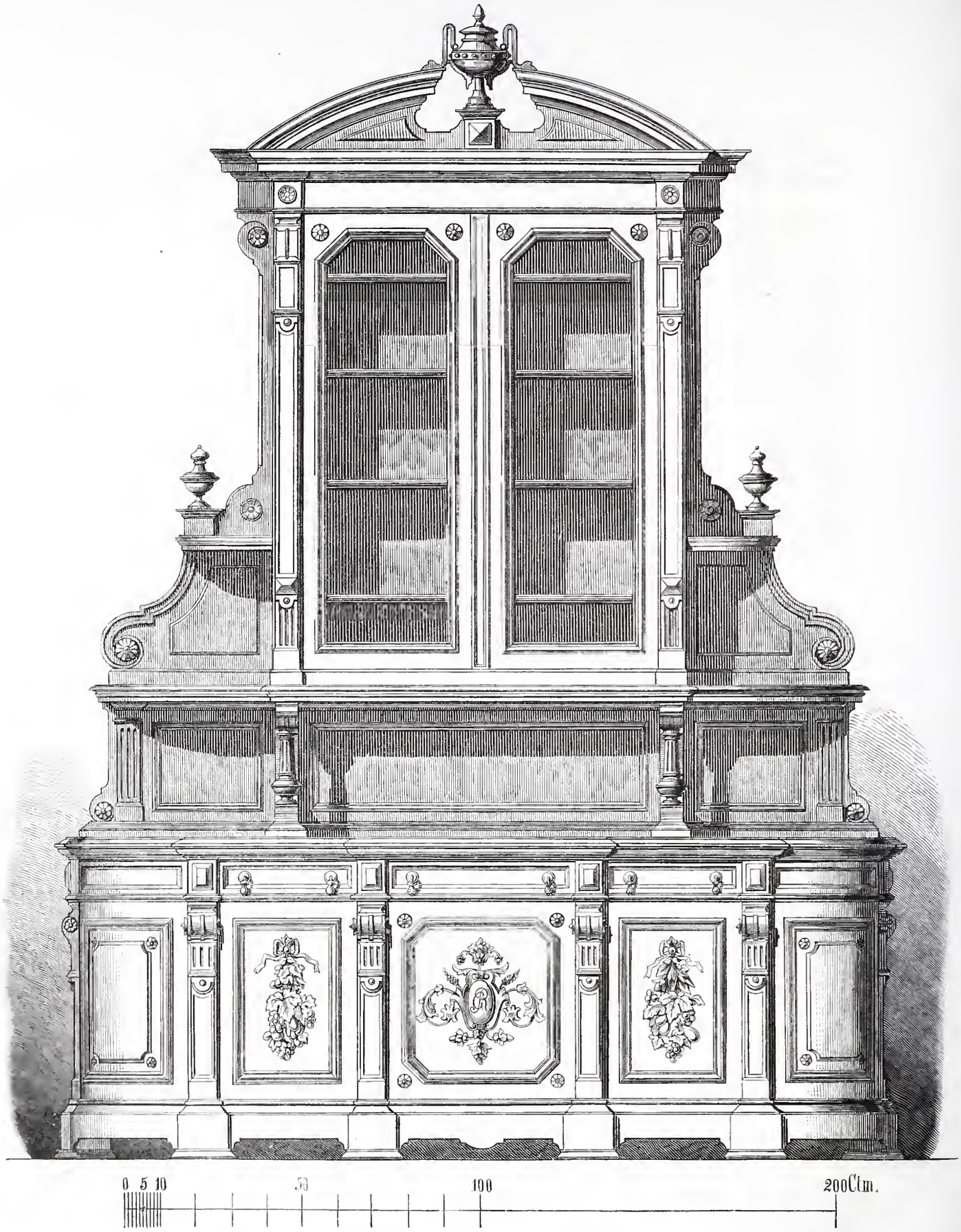
Nos. 17 and 18. Salver belonging to the burette No. 14. Nos. 19 and 20. Salver for depositing wedding-rings and gloves on marriage-ceremonies.

Nos. 21—23. Mason's Hammer for the laying of a Foundation stone; $^{2}/_{3}$ full-size. Prof. Wolanek, Vienna. Upper part of hammer polished steel with gold ornament; ivory handle set with gold and silver nails.

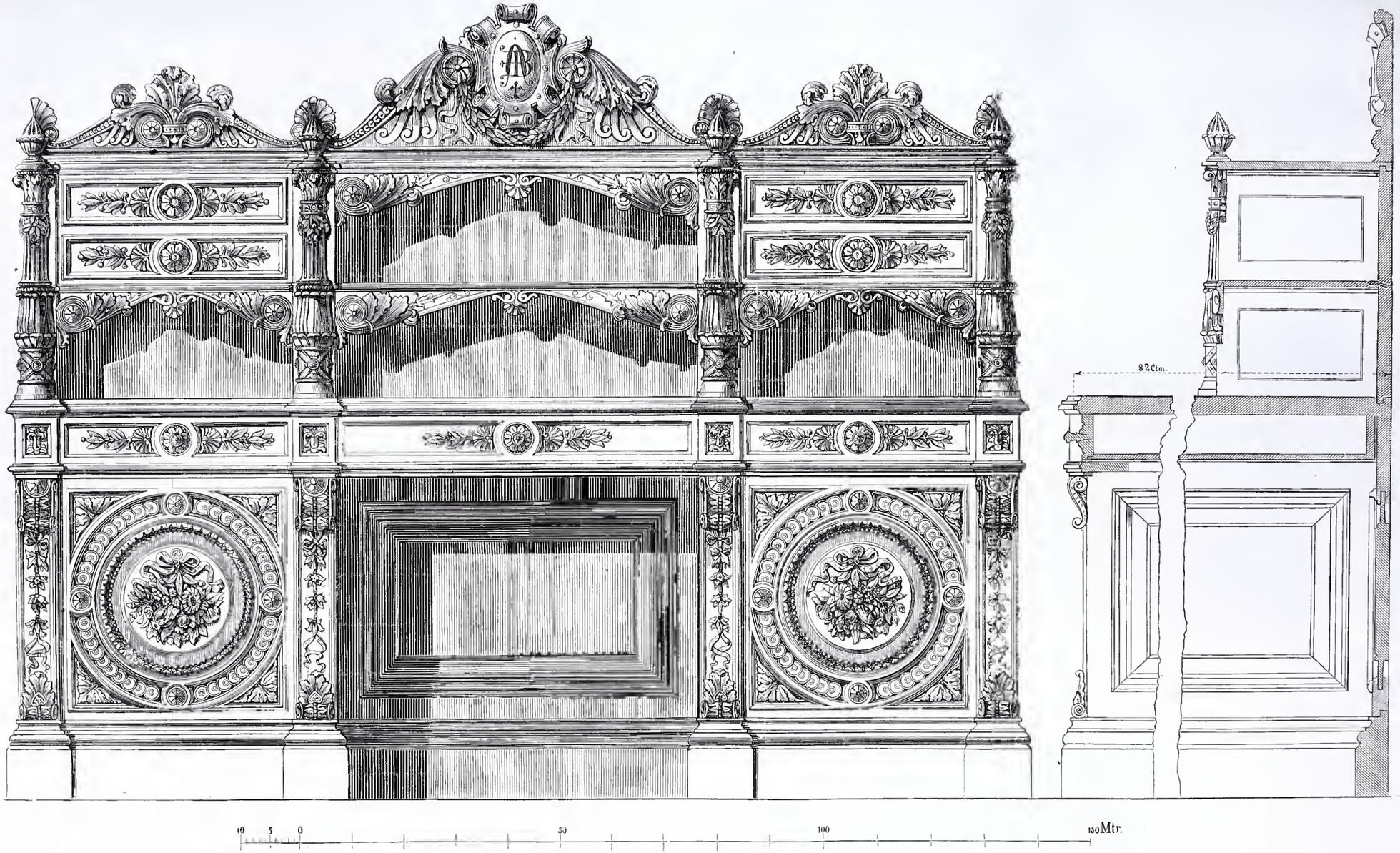


No. 25. No. 24.

Nos. 24 and 25. Prayer-Book Cover, designed by Mr. Rehlender, Archt., Berlin.
Embossed Marocco leather with silver-mounts, ground partly grained, indicated by the shaded parts, enriched with gold ornament, corner knobs and central name-plate being of silver.



No. 26. Modern Buffet in stained wood, with white marble slab. Messrs. Epple & Ege; Stuttgart.

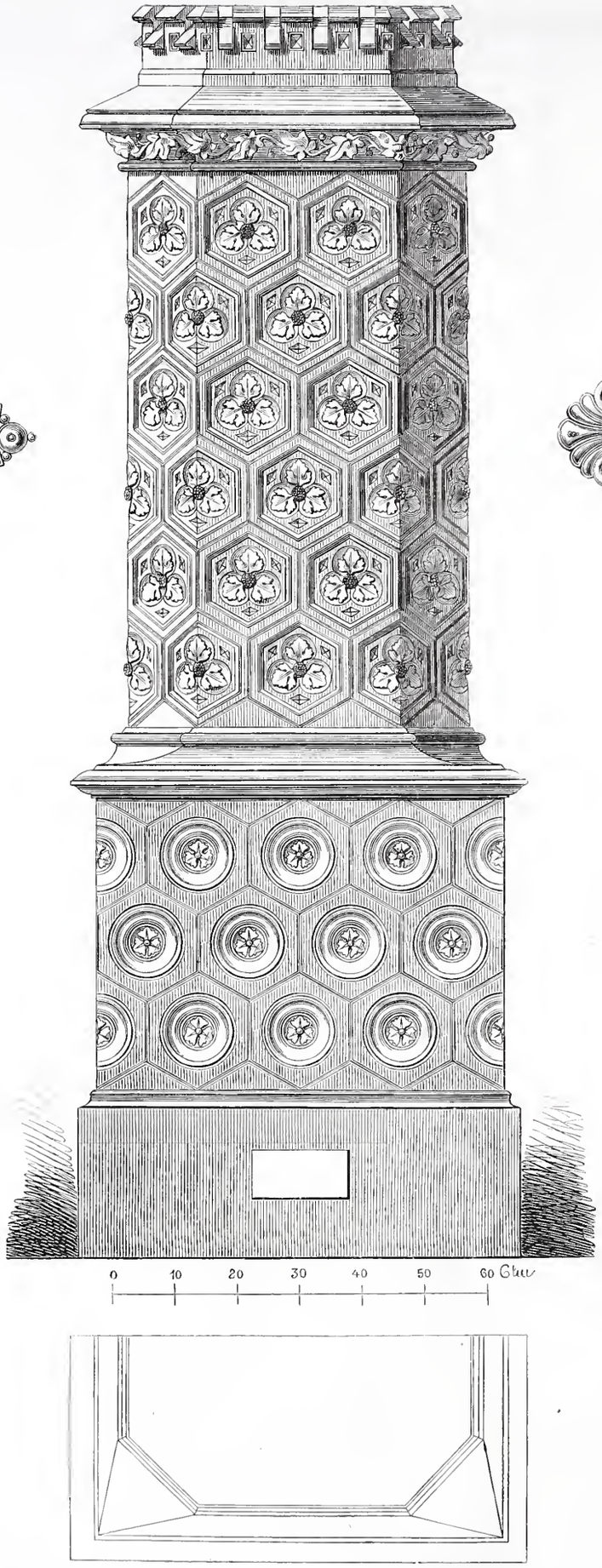


Nos. 27 and 28. Writing-Table, executed in Italian walnut from the design of Mr. Kachel, Archt., by Mr. G. Stoevesandt, Carlsruhe.
Details Nos. 2—5 of Supplement.

No. 31.

No. 32.

No. 33.



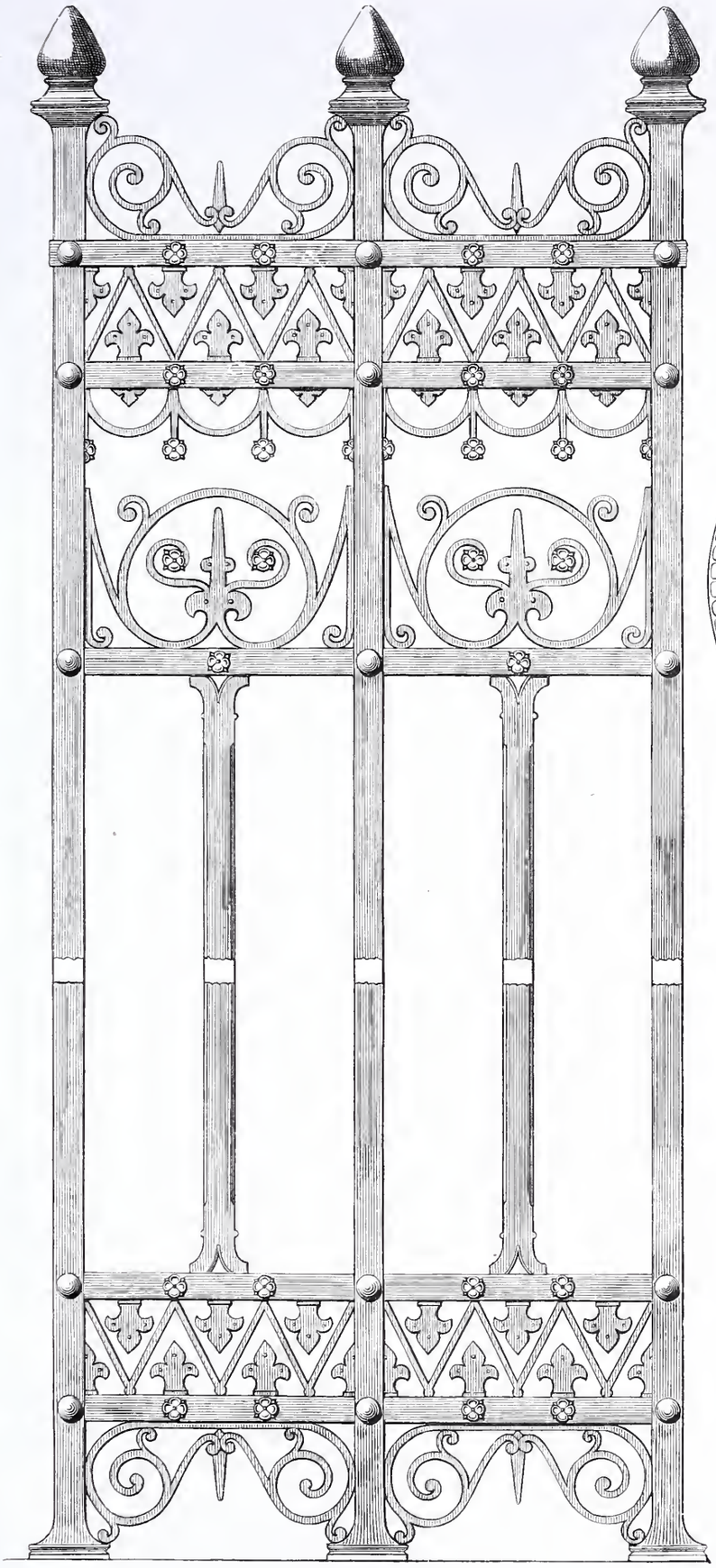
No. 34.

Nos. 29 and 30.

Nos. 29 and 30. Modern Gothic Stove manufactured from the design of Mr. Riewel, Archt., by Mr. B. Erndt, Vienna. Glazed and enamelled tiles in different colors, leaves and flowers green on white enamelled ground, the main-color of the stove being dark-brown, flowers and berries of cornice picked out in gold.

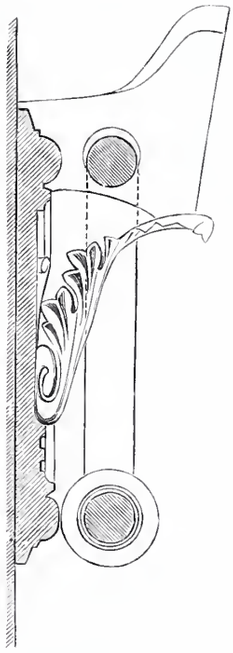
Details Nos. 6—8 of Supplement.

Nos. 31—34. Modern Roman Jewellery. Brooches and Ear-pendants, manufactured by Mr. K. Ansorge, Vienna.



No. 35.

No. 36.



No. 37.

No. 35. Wrought-Iron Rails from the Pompeian House of Prince Napoleon.
Nos. 36 and 37. Knocker of Gate belonging to No. 35. M. A. Normand, Archt., Paris.

VARIOUS.

Inside an Abyssinian Church.

Dr. Blanc in an interesting series of papers on Abyssinia in the *British Medical Journal,* writes: — Except in the province of Tigré, all the churches in Abyssinia are circular, the walls generally of mud and stone, the roof conical and thickly covered with straw. The church proper consists of three coneentric circles; — the first a kind of verandah, wherein the congregation assembled; the second the church itself, where the priests perform their ceremonies; the third, or innermost circle, the "Holy of Holies", containing the sacred vase and the "Tabot," a small square piece of wood, having on one side a cross, on the other three stars, symbols of the Trinity, and on which are carved the name of the ehurch, and that of the bishop by whom it was consecrated. The verandah is, for the stranger, the most iutcresting portion of the edifiee. In some, like "Medani Alum" (Saviour of the world) the church we visited that day, the paintings that adorn the walls, all considering, are not badly made. St. George and the dragon in the chureh of Medani Alum held a prominent and conspicious plaee; next eame the Twelve Apostles and the Trinity, God being represented in the form of a benevolent looking old gentleman. Several representations of our Lord's sufferings graeed the walls.

To Color-Stain Dried Grass.

There are few prettier ornaments, and none more eeonomical and lasting, than bouquets of dried grasses, mingled with the various gnaphalia, or unehangeable flowers. They have but one fault; and that is, the want of other colors besides yellow or drab or brown. To vary their shade artificially, these flowers are sometimes dyed green. This however is in bad taste, and unnatural. The best effect is produced by blending rose and red tints, together with a very little pale blue, with the grasses and flowers, as they dry naturally. The best means of dyeing dried leaves, flowers and grasses, is simply to dip them into the spirituous liquid solution of the various compounds af aniline. Some of these have a beautiful rose shade; others a red, blue, orange, aud purple. The depth of color can be regulated by diluting, if necessary, the original dyes with methyl or spirit down to the shade desired. When taken out of the dye they should be exposed to the air to dry off the spirit. They then require arranging, or setting into form, as, when wet, the petals and fine filaments have a tendency to cling together, which should not be. A pink saucer, as sold by most druggists for sixpence, will supply enough rose dye for two ordinary bouquets. The druggists also supply the simple dyes of various colors, at the same cost. The pink saueer yields the best rose dye. By washing it off with water and lemon juice, the aniline dyes yield the best violet, mauve and purple colors.

S. Piesse.

Coating Castings with Gold and Silver.

Gilding. — Gilding cast iron by means of gold amalgam is very difficult, as the amalgam does not adhere to the iron. It is therefore necessary to brush the well-cleaned surface of the iron with a concentrated solution of copper vitriol, and to apply the the amalgam to precipitated copper. As under certain circumstances the coating of copper is injurious, Böttger eoats the articles direct with mercury by means of the elective, positive zinc in the following manner: The article to be gilded is well cleaned and boiled in a porcelain vessel together with 12 parts of mercury, 1 part of zinc, 2 parts of iron vitriol, 1½ parts of muriatic acid of 12 specific gravity, and 12 parts of water; in a short time a layer of mercury will deposit upon the iron, and upon this the gold amalgam may be uniformly distributed.

The gilding may also be effected upon polished iron in the following manner: If a nearly neutral solution of chloride of gold be mixed with sulphuric ether and agitated, the ether will take up the gold and float above the denser liquid. When this auriferous ether is applied by a camel-hair pencil to brightly polished iron or steel, the ether evaporates and the gold adheres. It is fixed by polishing with a burnisher. This gilding is not very rich or durable; in fact the affinity between gold and iron is feeble compared to that between gold and copper or silver.

Gilding of cast iron by the galvanic way is also diffieult, and is successful only if the article is perfectly clean. It is advisable previously to coat the article with copper or silver.

Polished iron may also be gilded with heat by gold leaf.

Silvering Cast Iron. — Iron to be silvered is first provided with a coating of copper, upon which the silver is applied either by means of amalgam or silver leaf.

Cast iron can be well silvered by the galvanic way without a previous coppering.

Practical Treatise on Metallurgy.

Modern Iron Work.

At the last Paris International Exhibition, a pair of iron gates, by Messrs. Barnard, Bishop, and Bernards of Norwich, attracted the notice of most visitors, by their colossal size, by the elaborate and beautiful character of the design, and by the skill with which the workman's hammer had wrought it out. An examination of those gates naturally led to the inference that if the manufacturers were afforded another opportunity of producing a work of the same kind, it would reflect equal, if not greater, credit upon them. In the summer of last year this great firm of iron workers received a commissiou from the Government of Buenos Ayres to furnish a series of ornamental gates aud connecting railings for the purpose of enclosing the area covered by the station and a certain portion of the railway: the order is now completed, and is already on its way to the River Plate. The gates for the principal entrance to the station are the subject of the aunexed engraving. They are about 14 feet wide, by 11 feet in height; the lower panels are filled with a design suggested by the hawthorn, which, with the rose and oak, is the type of the whole ornamentation. The plan of the piers is oblong, the sides and backs being filled with the same ornamental designs as the front; wings to match complete the set, which occupies au arch in front of the station. Without any attempt at overmuch elaboration, the riehness of the design is most striking, and at the same time is characterised by good taste: the merit must be given to Mr. Alfred Barnard, oue of the younger members of the firm, who originated and superintended the execution of the whole work: it is entirely of wrought iron.

Art Journal.

The Tomb of Henry VII.

The well known central monument in the chapel of Henry VII., Westminster Abbey, has been cleansed and revived. The tomb itself is seen to be of blaek marble; the effigies and other metal adjuncts are gilt. The gilding is for the most part in an excellent state of preservation, the subjects of the sculptured groups in the cireular panels round the tomb are now obvious, and the inscription is legible. The dark metal screen around the tomb would prevent its newly-restored brigthness from interfering with the sombre harmony of the chapel as a whole, even were that brightness more glaring than it is. It was a decidedly desirable work to do. Nothing has yet been done to the screen; but doubtless it will be cleaned and the small portions that are gilt brought out. Looking at the tolerably complete appearence of the monument at first sight, it is somewhat startling to hear that 1,500 pieces are wanting to make it perfect; yet such we believe is the case.

The Builder.

The Workshop.

A Monthly Journal, devoted to Progress of the Useful Arts

EDITED BY

PROF. W. BAUMER, I. SCHNORR AND OTHERS.

VOL. I. No. 24.

DECORATIVE TREATMENT OF FRAMES, WINDOWS AND PANELS.*

Though the most perfect and appropriate form for encircling and bordering any object is certainly the round or oval frame; still the decorative motives and enriched mouldings, referred to above, may equally well be applied to rectilineal, round and combined regular forms.

As for the rectilineal frame, we may point out one particular form in which the panel is not bordered in the same style on all four sides, the lower part being otherwise designed than the sides and upper part, or, in imitation of doors and window-dressings, replaced by a sill, showing other mouldings and decoration than jambs and lintel (see figs. 3—6, 8 and 9). Antique specimens of such framework are still extant, e. g., that of a window from Tivoli Temple (Supplement *B*). In the Middle Ages, during the Romanesque and Gothic periods, doors and window dressings, panels and picture-frames used to show bold jamb-mouldings ending at a certain height above the lower part or sill (figs. 3—5). During the Renaissance period either the antique style of frame-work appears, or it is returned and broken at the lower ends, showing the jamb-mouldings in section. (fig. 6.)

For basement and mezzanine windows, and for those of a certain class of buildings, such as prisons, etc., it may appear judicious to choose another proportion of height and width than usual, the latter predominating and thereby producing a sort of low and flat opening, a form which is alike suitable for dados, socles, wainscotings and backs of windows, in juxtaposition to the high panelling of the upper part of a wall. If, however, this flat form is chosen, attention must be paid that it be either a marked square or oblong. All those forms at the sight of which the eye is not at once struck as belonging unmistakably either to the one class or the other ought to be carefully avoided. We may also remark here, that for optical reasons more height is in reality necessary in most cases than that which is intended to be conveyed to the eye, an exact square placed at some height appearing as an oblong, and the circumference of a circle an oval. For the same reason the upper vertical part of a spire-cross must be made considerably longer than both the horizontal ones in order to appear equal to them. Hence we must conclude that. according to the height in which the panel or frame is placed, we must give more or less height to the oblong if, seen from below, it is intended to appear a square. In the same way and under the same circumstances, if we wish to see as nearly as possible an exact circle, we must make in reality an oval frame showing more height than width. It may also be suitable to use various forms of frames, squares, circles and polygons alternating with the oblong and oval if a certain number is to appear together.

With regard to the dimensions and proportions of frames we cannot hazard to give any distinct rules, they being subject to the size and importance of the framed picture, the mirror, etc. A small picture may often appear very well in a comparatively broad frame, the latter giving more weight and body to a work of in-

* See p. 353 *ante*.

Fig. 3.

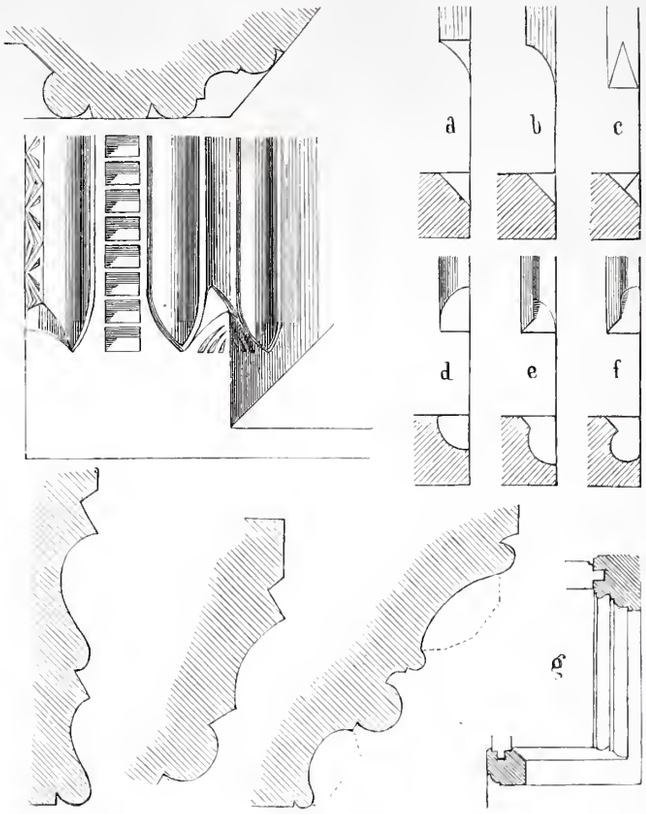


Fig. 4 and 5.

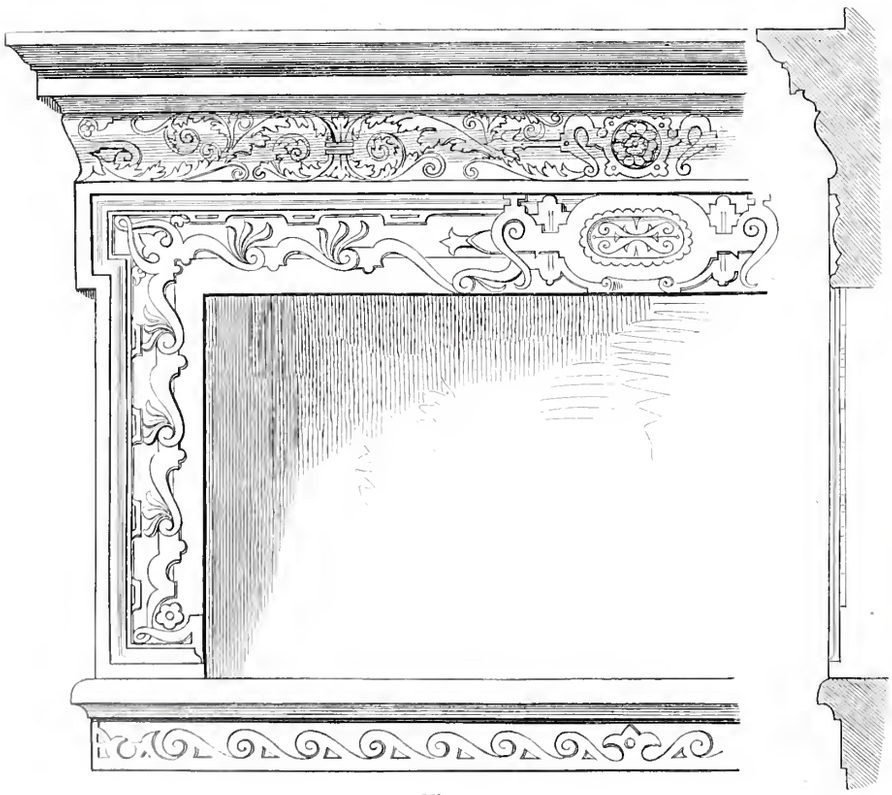


Fig. 6.

Fig. 3. Roman Niche From Nerva Temple, Rome.
Fig. 4 and 5. Romanesque and Gothic Window Dressings.
Fig. 6. Renaissance Panel from Baden Castle.

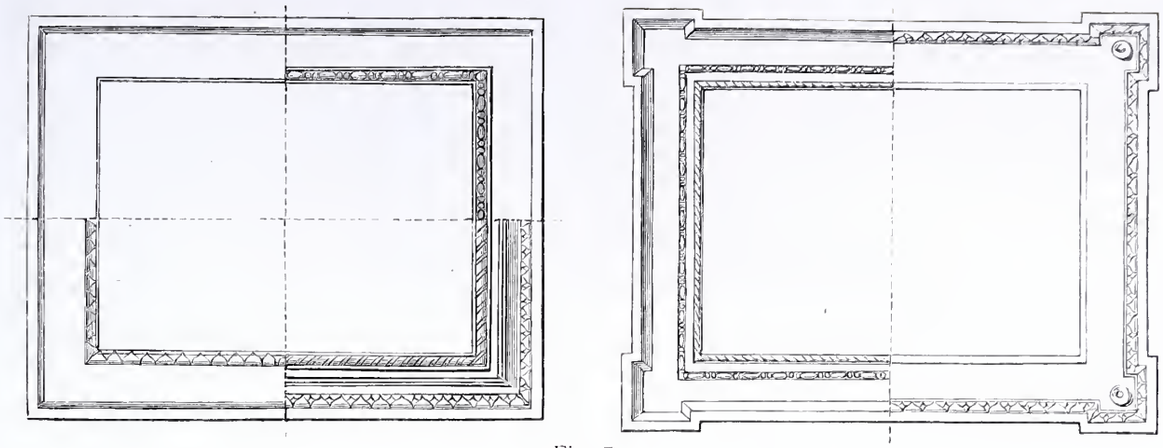


Fig. 7.

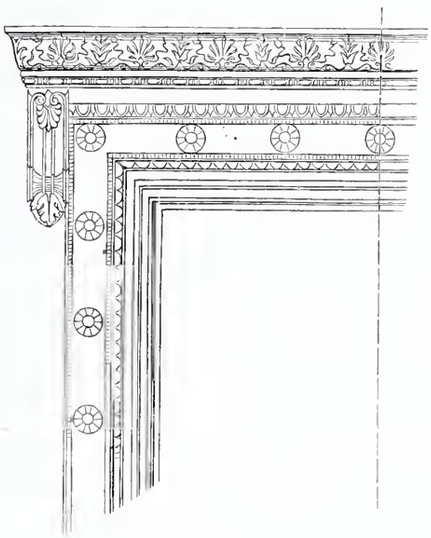


Fig. 8.

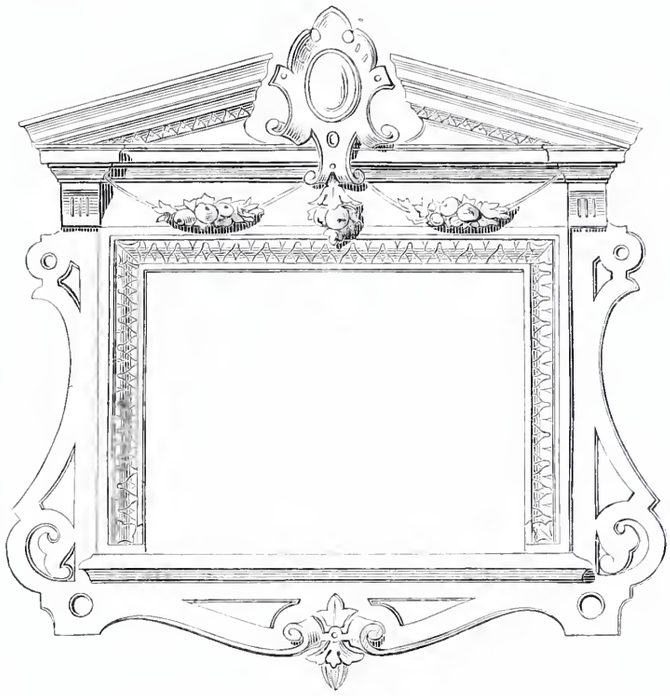


Fig. 9.

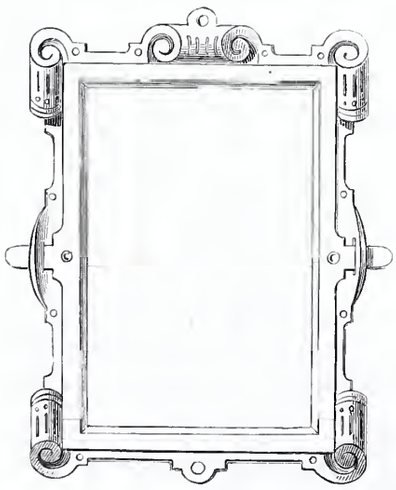


Fig. 10.

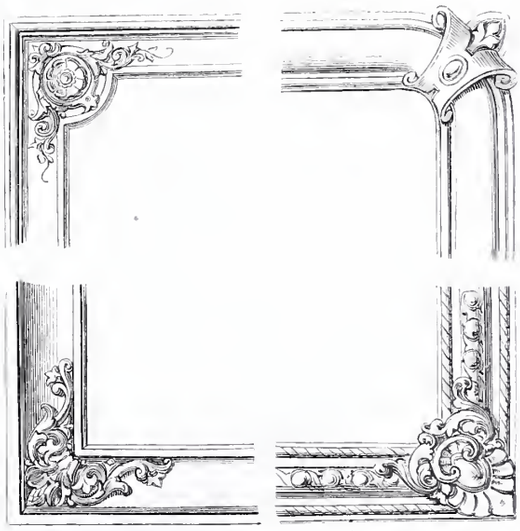


Fig. 11.

Fig. 7. Modern Frame.
Fig. 8. Detail of Grecian Door from the Erechtheion, Athens.
Fig. 9. Modern Renaissance Frame.
Fig 10. Renaissance Panel from Rothenburg: Sixteenth Century.
Fig. 11. Modern Renaissance Frame.

trinsic worth and importance. For doors and windows however we may best be guided by antique examples in which the proportion of width to height in clear is in general very near 1 to 2, and the breadth of the frame varies usually between 1/5 and 1/7 of the width. A broader frame-work would convey the impression of severity, strength and heaviness, and may therefore with perfect right be applied to sepulchral monuments, castles, the basements of buildings, etc.

The frame gains a still bolder, more characteristic form and appearance by the addition of ears (fig. 7) which, originally suggested by the antique structure of doors and windows, give occasion to apply nails, knobs, flowers, etc., in the corners, thereby representing and marking the fixing of the frame to the wall or some other material. Often also a crowning cornice with or without a frieze surmounts the frame, and is further enriched by consoles and a straight or arched pediment (fig. 9). In this form the frame is unquestionably subject to the principles and rules of Architecture by which so many branches of Art-Industry must abide. Of striking effect in this respect and capable of the richest and most monumental development is the purely architectural structure and groundwork, capped by a complete entablature. and supported by columns, pilasters, hermæ or figures.

A highly important decorative feature is also the pediment, which, though it may be considered as a triangular panel or frame, is however subject to other principles of ornamentation, giving quite a different form of expression, and requiring therefore also a separate treatment. For small objects, pictures, mirrors etc., it is indeed much less suitable, but so much the more for more important works, where it appears with the tympanum, often enriched with the most beautiful and exquisite sculptures. The roodlofts also and open trusses of the roof which the Middle Ages knew so well how to decorate, as illustrated by numerous examples of charming design, belong to this category. Consisting of two rafters as oblique sides of the triangle and the tie-beam as base, the different constructive purposes of these features are to prevail in their decoration. If the tie-beam, e. g., is enriched with running ornament of some sort, this ought to depart in opposite directions from the middle and never the reverse. If high enough, it may have two frets one above the other and running both in opposite directions; but any upright fluting or chamfering would be entirely out of place for the decoration of the tie-beam. The rafters, if decorated in the same way, must, in harmony with their constructive tendency, have the frets or other running ornament directed from both sides towards the summit. These same principles find their expression also in the pediment, which is most effectively and appropriately surmounted by the acroteria. If the raking cornice is enriched with dentils and consoles they must be vertical and not perpendicular to the inclination of the roof.

If after this we return to the rectangular frame, we may conclude from the foregoing remarks that in all cases in which the decoration of the frame is not one and the same all round, and radial to the panel, the upper and lower parts must be clearly marked and differently treated, according to their own peculiar character. With regard to the upper part the principles to be observed are partly already apparent through the above observations, and we shall recur to them again further on. The lower part will either hang freely on both ends or support the upper part. In each case the decoration will be different, either festoons and floating bands, or plinth mouldings, strongly interlaced patterns, frets etc. being chosen for this purpose. Also the hanging triangular panel serving sometimes as the lower part of the frame must be referred to as it appears frequently with windows, reliefs, monumental tablets, etc. If figures are employed in combination with these features they must again appear only in upright position.

With the view of explaining and illustrating the foregoing observations on the decoration and form of frame, we give, Supplement *B*, some examples of antique frame-mouldings, and at *C* some others, dating from the eighteenth and nineteenth century, and being characteristic specimens of the different classes they are to represent. We hope that modern Art-Industry, while emulating only good examples, will employ the rich resources over which it has command in consequence of the immense increase of international intercourse, in order to produce also in this branch good and appropriately designed frames, without being led astray by the ever-varying taste of fashion.

The interior decoration of the window, of which we wish to speak in conclusion, consists generally, besides drapery and hangings, of the curtain gallery, which is strictly speaking nothing else but the upper part of the frame, and therefore partly subject to the constructive and decorative laws pointed out above. Still it has its own peculiar character, by which it distinguishes itself and which must bear upon its form and ornamentation. It is hardly constructive necessity but rather decorative considerations which prevail here; it has only to bear its own weight and that of the hangings, lies free on

both ends, and its dimensions are again regulated rather by æsthetic reasons, the eye requiring, besides proper supports of some description on both ends, a good proportion of the height to its length and to the size and form of the window. The curtain gallery surmounts the interior window, just as the exterior is crowned by the cap or pediment. Elegant mouldings, crowning members, judiciously designed with regard to the indistinct light in which they appear, are of good effect here, (Supplement *D*, excl. *D. I.*); zones or bands with crowning cornice and enriched with frets, meanders and other textile motives, honey-suckle, egg and dart ornament, bead-rolls, etc., are therefore very appropriate and effective decorative features for the enrichment of the gallery, especially when relieved by color and gold. But we cannot approve of the meaningless, ungraceful *lambrequins*, so often seen in modern chamber decoration, with clasps in the middle, behind which the crowning cornice cannot be discovered; or of heavy and massive mouldings the ornamentation of which is frequently without any intrinsic bearing to their relation and meaning. (Supplement *D. I.*) As examples for suggestion, and as illustrations of the foregoing remarks we refer to Supplement *C*, and fig. 2 of last Part of the *Workshop*. Still the decorative treatment of the gallery will always depend on the hangings, according to their being more or less heavy.

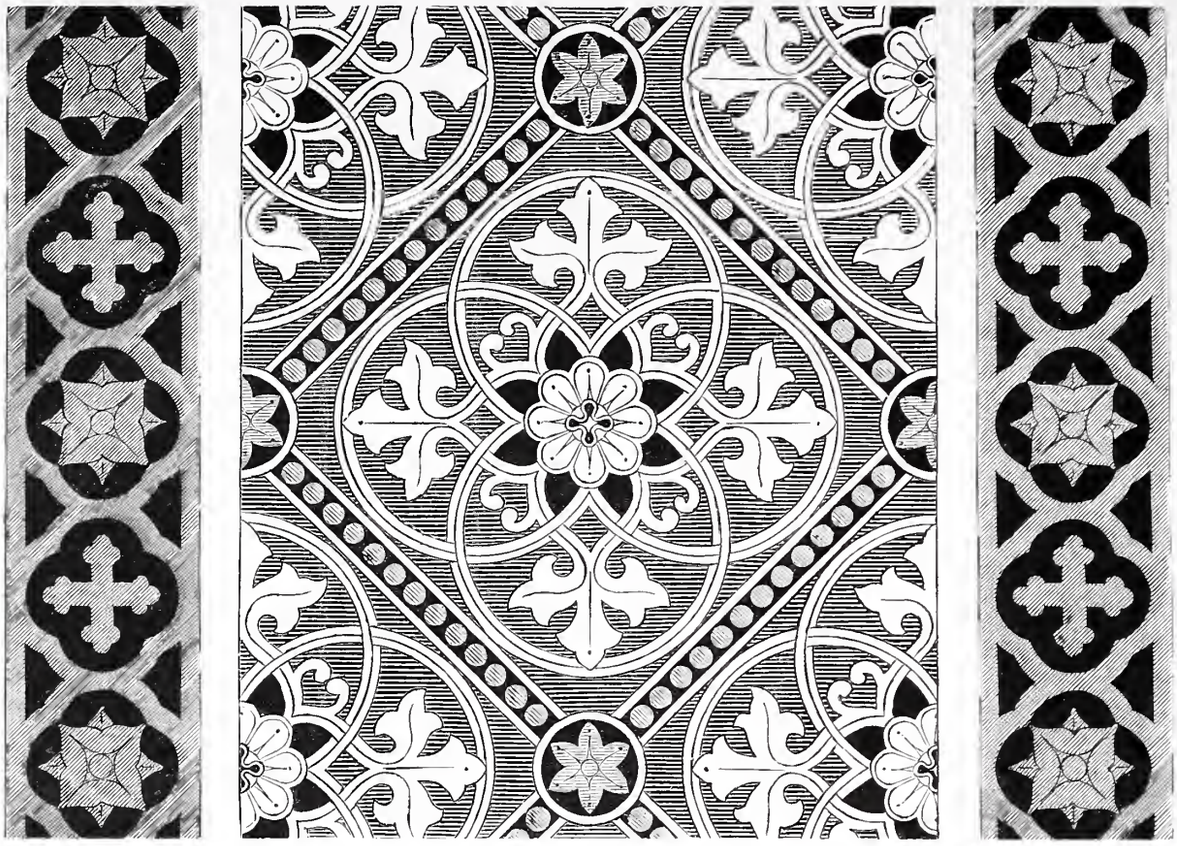
We conclude by enumerating the different styles of curtain galleries.

1. Simple mouldings, polished or gilt; crowning members.
2. Poles supported by brackets.
3. Cornice with or without consoles.
4. Cornice with frieze or architrave, if of great width divided in the middle, often surmounted by acroteria.
5. Cornice as before, and decorated with drapery and cords, rich stuff sometimes fancifully cut, and the lighter curtains beneath with appropriate pattern falling in rich folds.

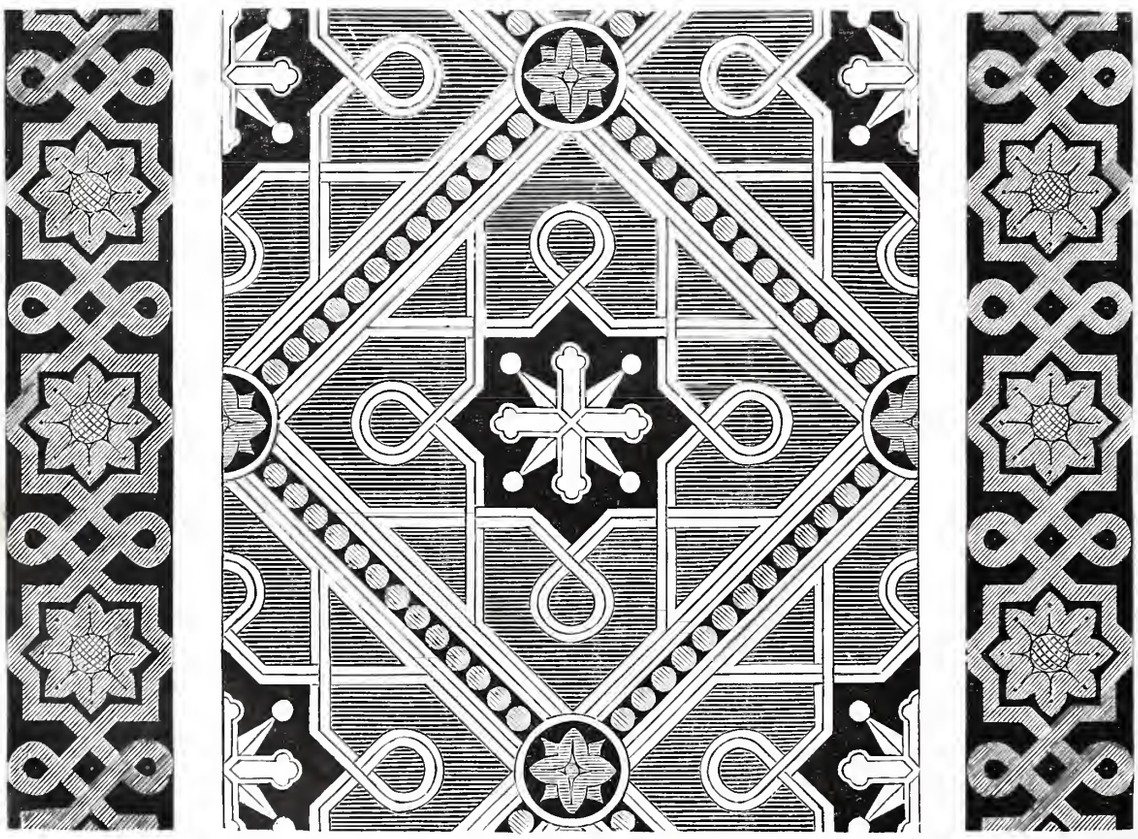
The same remarks apply as well to door hangings and galleries.

Specimens of Ornamentation.

No. 1. Modern Ceiling-Flower.

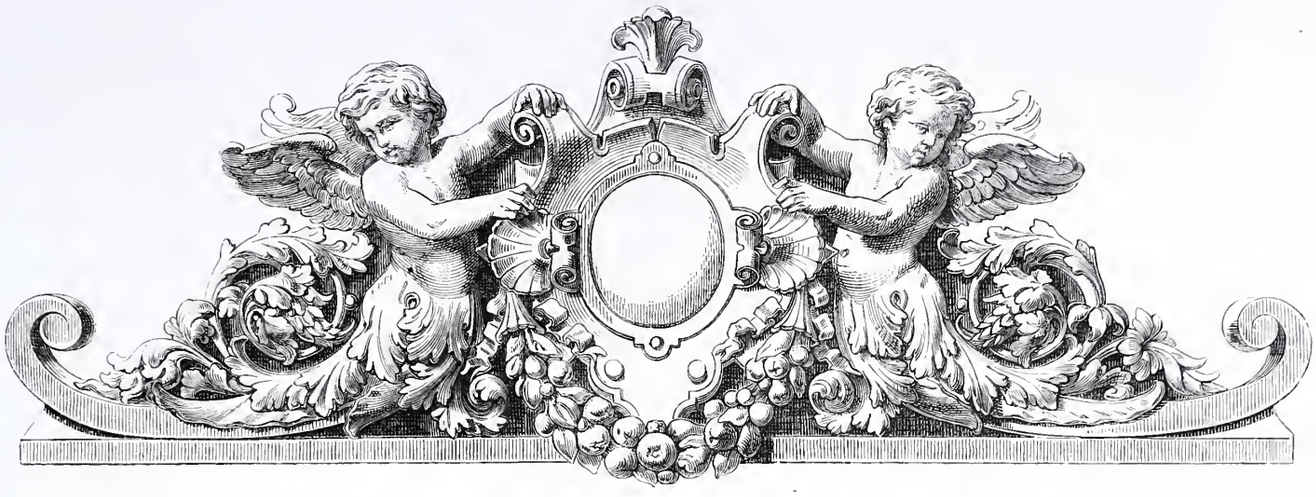


No. 2.



No. 3.

Nos. 2 and 3. Patterns for Grisaille Windows with colored borders.
Hatched ground of squares, yellow bead-rolls with red flowers on black ground at the intersections.
Border flowers and geometrical pattern violet on black in No. 2, green on black in No. 3.



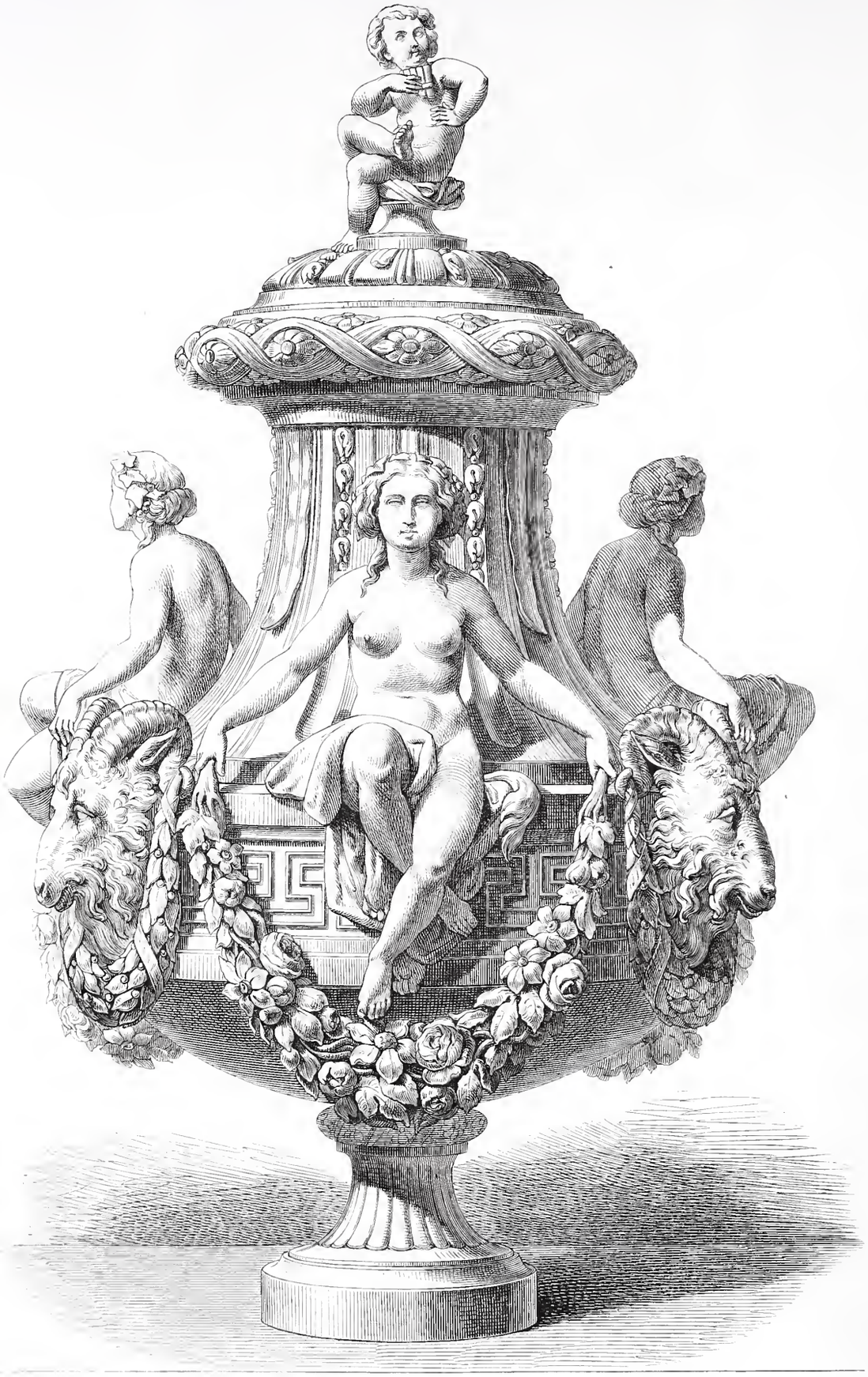
No. 4.

No. 5.

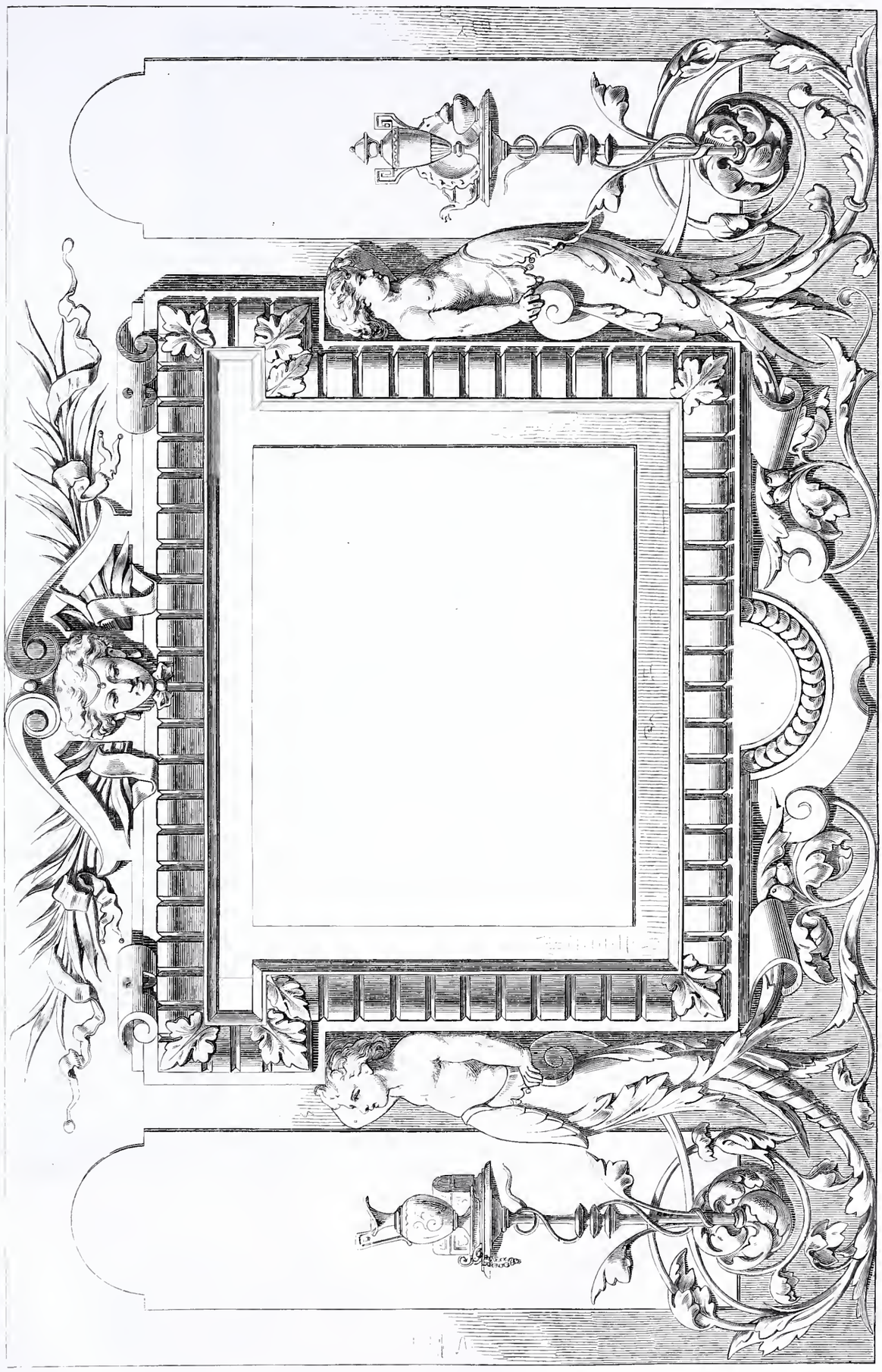
No. 7.

No. 6.

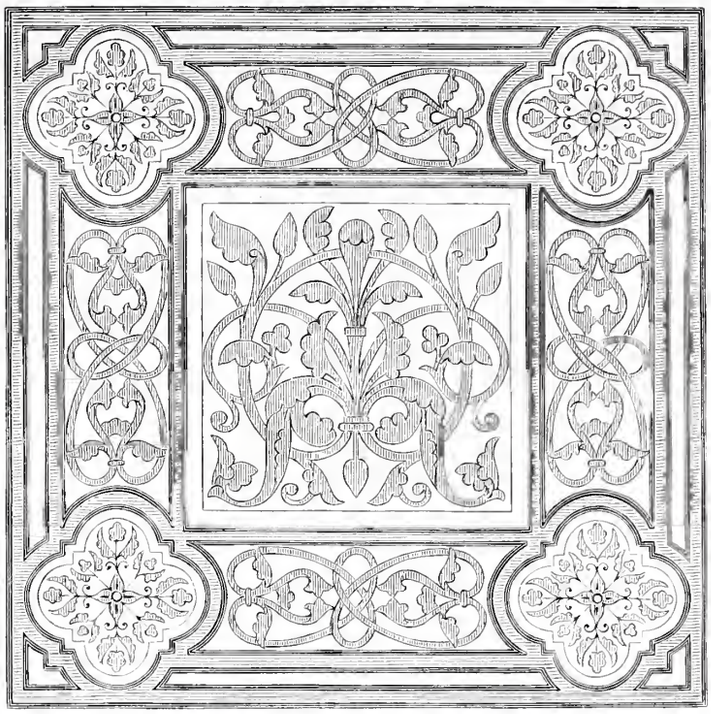
Nos. 4—7. Modern Ornaments by Mr. A. Jungermann, Sculptor, Berlin.



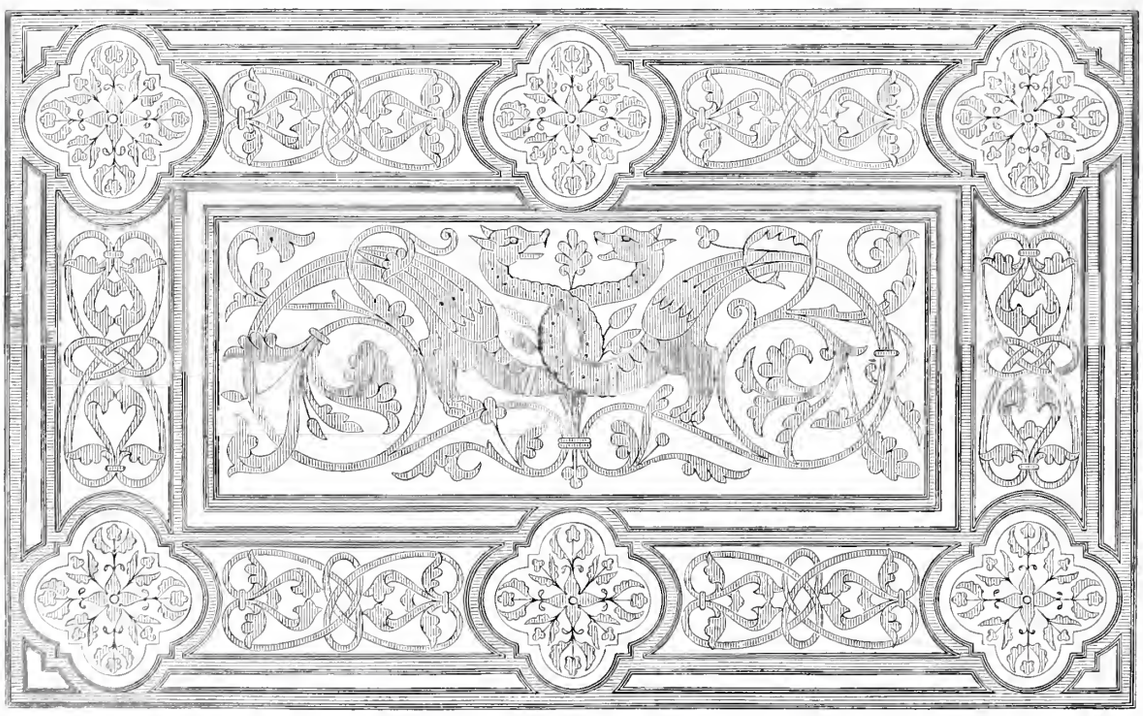
No. 8. Majolica Vase. Height 25cm. Messrs. Minton & Co. Stoke upon Trent.



No. 9. Design of Carved Frame by M. Villeminot, Sculptor, Paris.



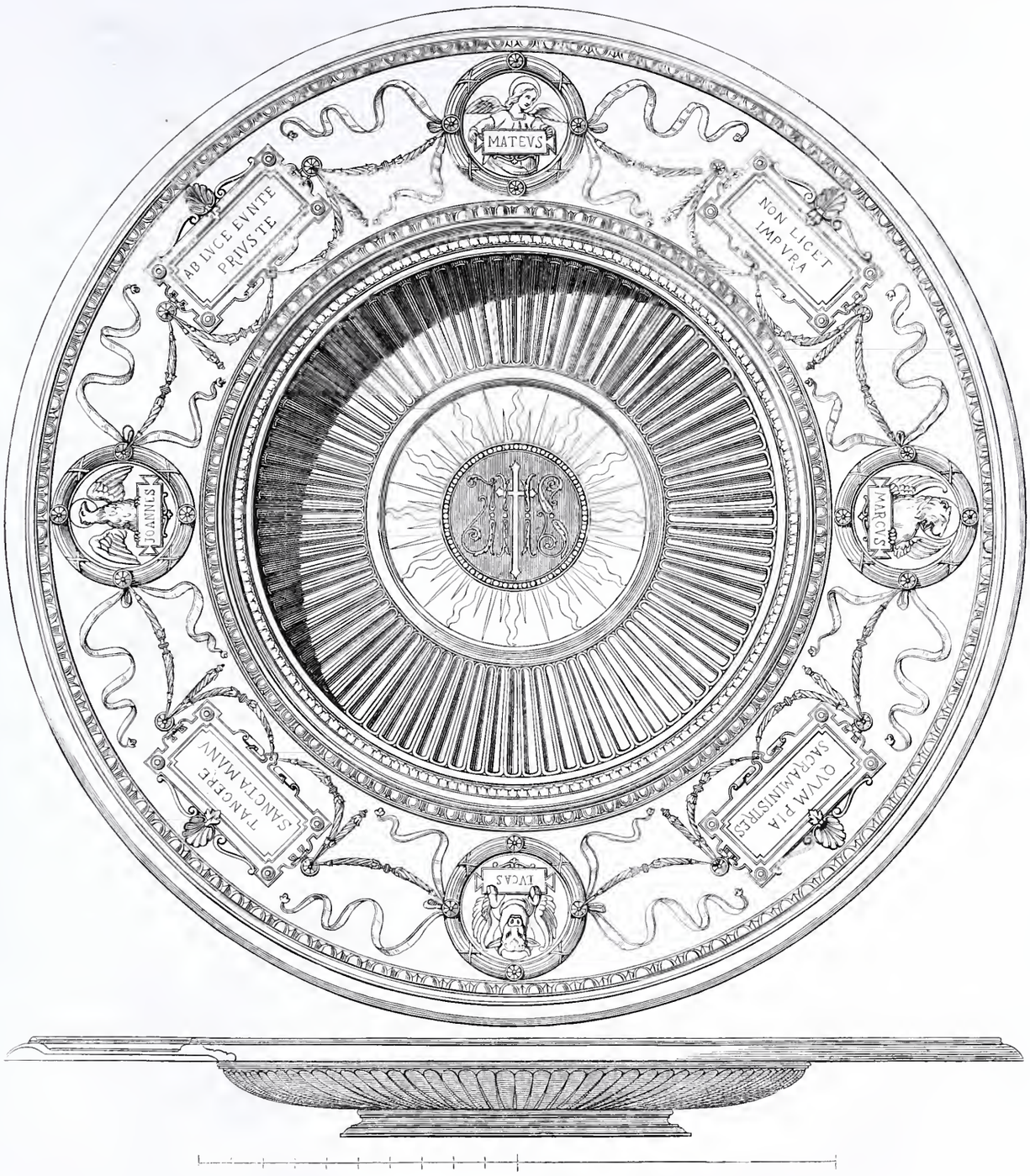
No. 10.



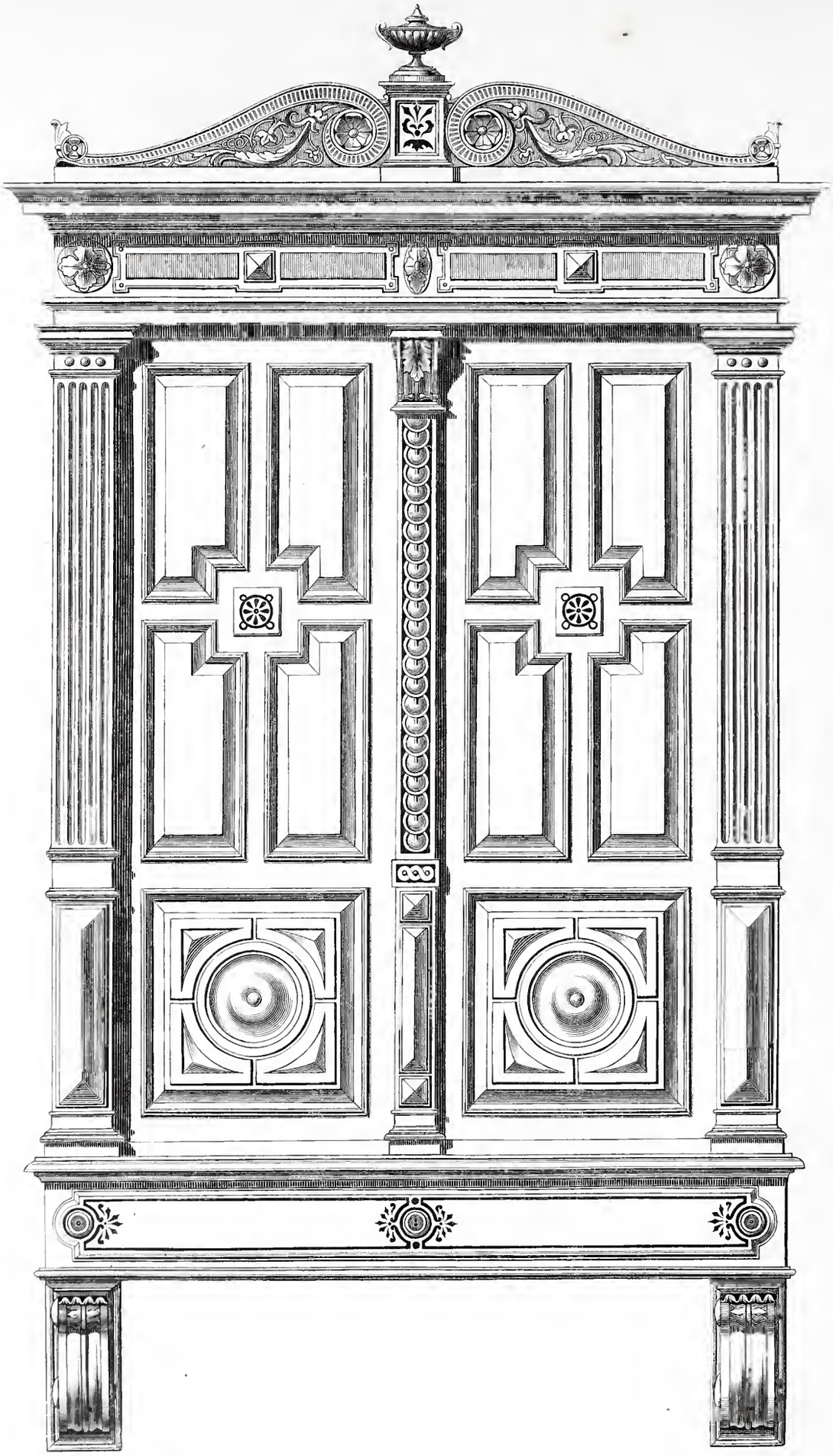
No. 11.

Exhibition of the *"Union Centrale des Beaux-Arts appliqués à l'Industrie"* in Paris 1869.

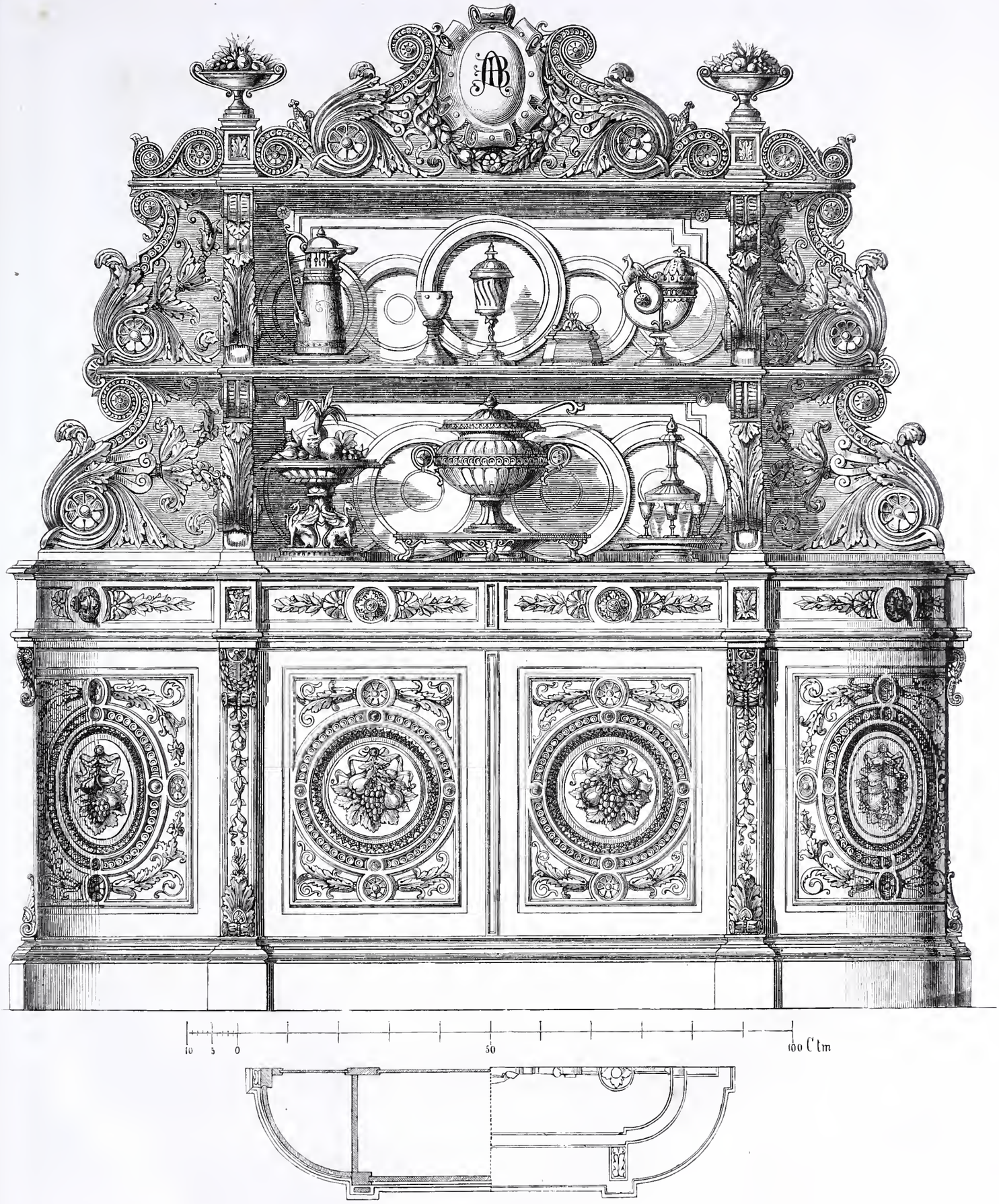
Nos. 10 and 11. Panels of a Jewel Casket, executed in *email cloisonné,* designed by M. E. Philippe, Paris.



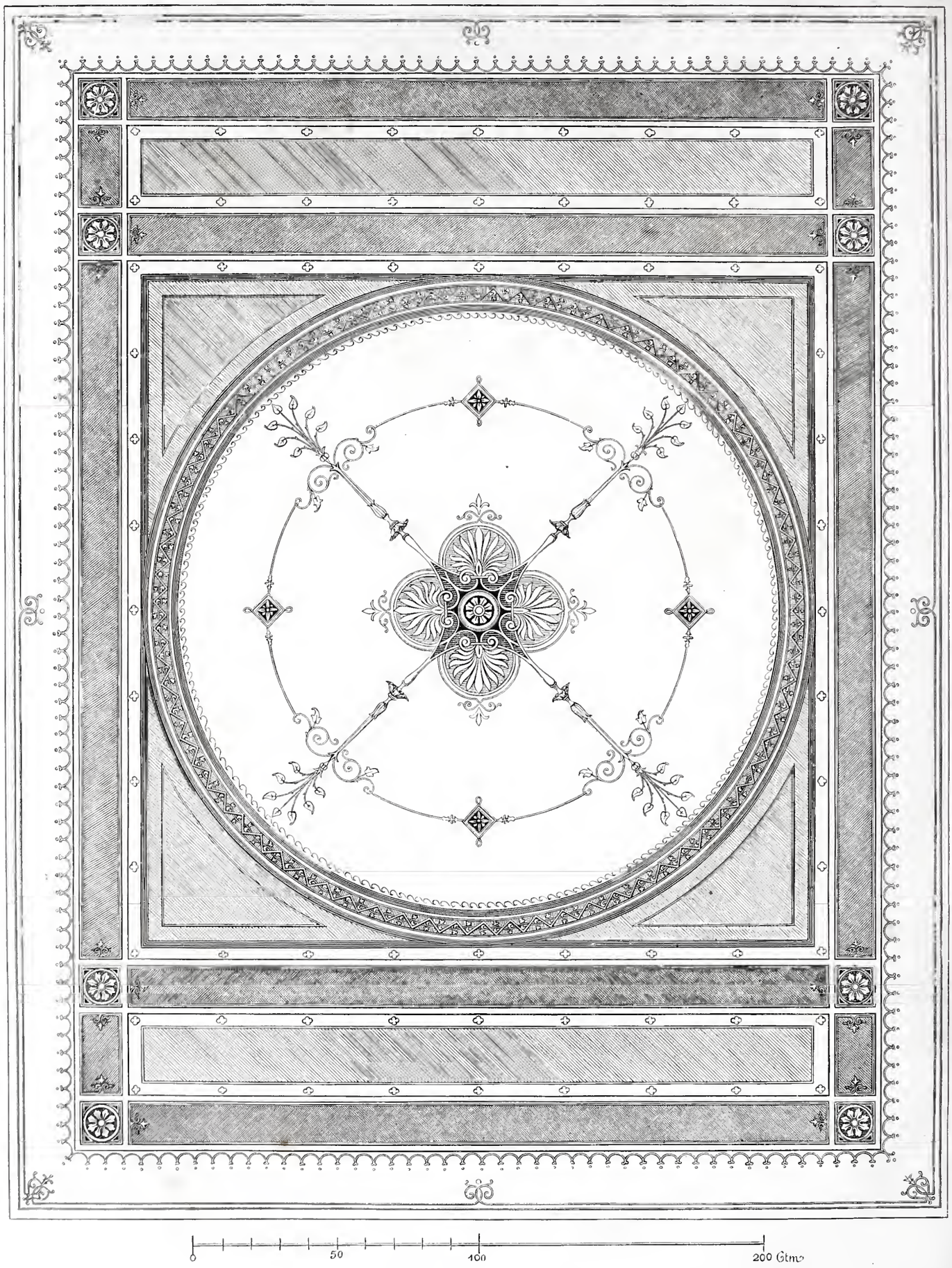
Nos. 12. and 13. Design of Church Vessel by Mr. V. Teirich, Archt., Vienna.



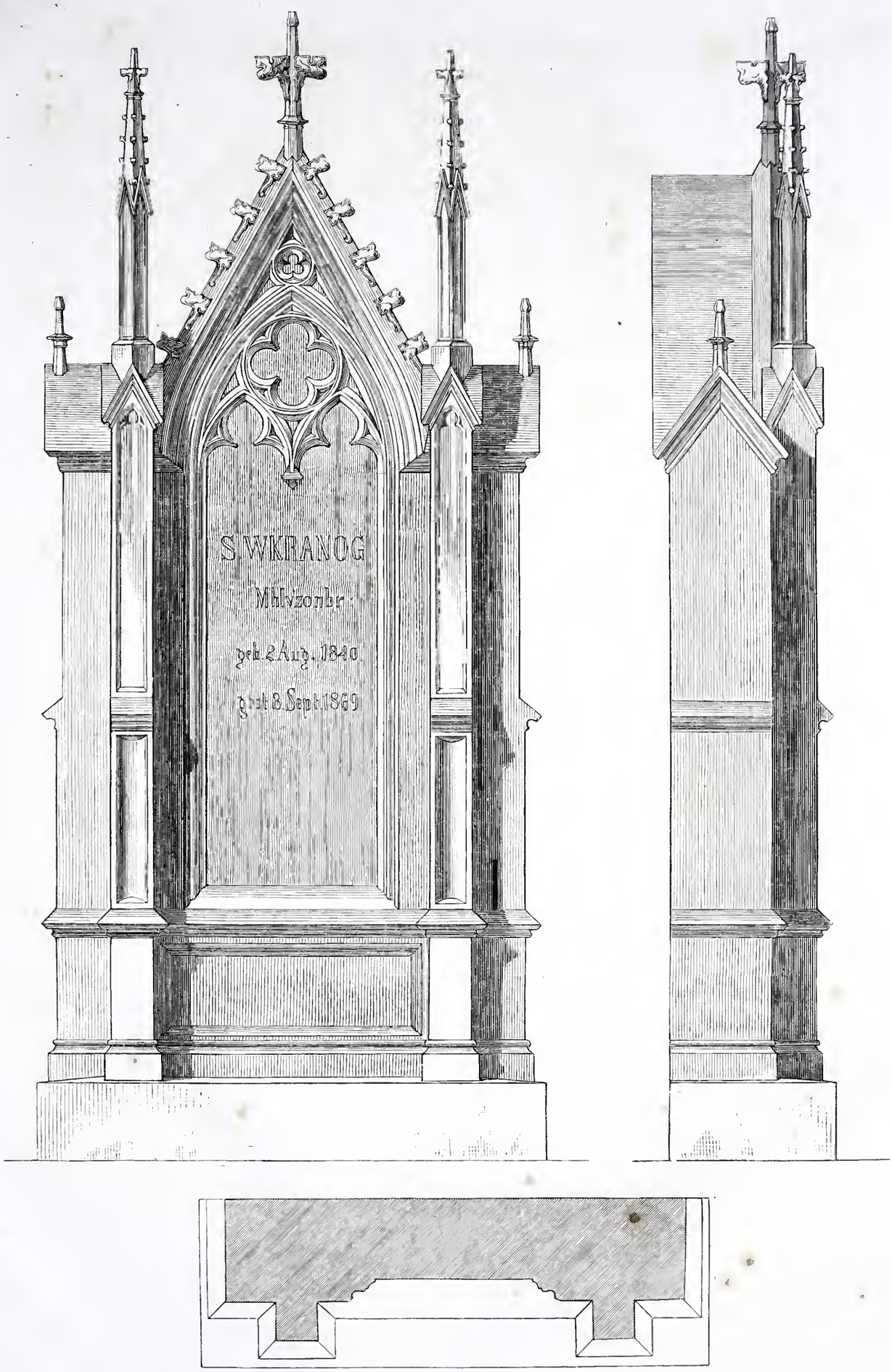
No. 14. Modern Cabinet Mr. Fr. Steffan, Archt., Munich.
Full-size details in No. 3 of Supplement.



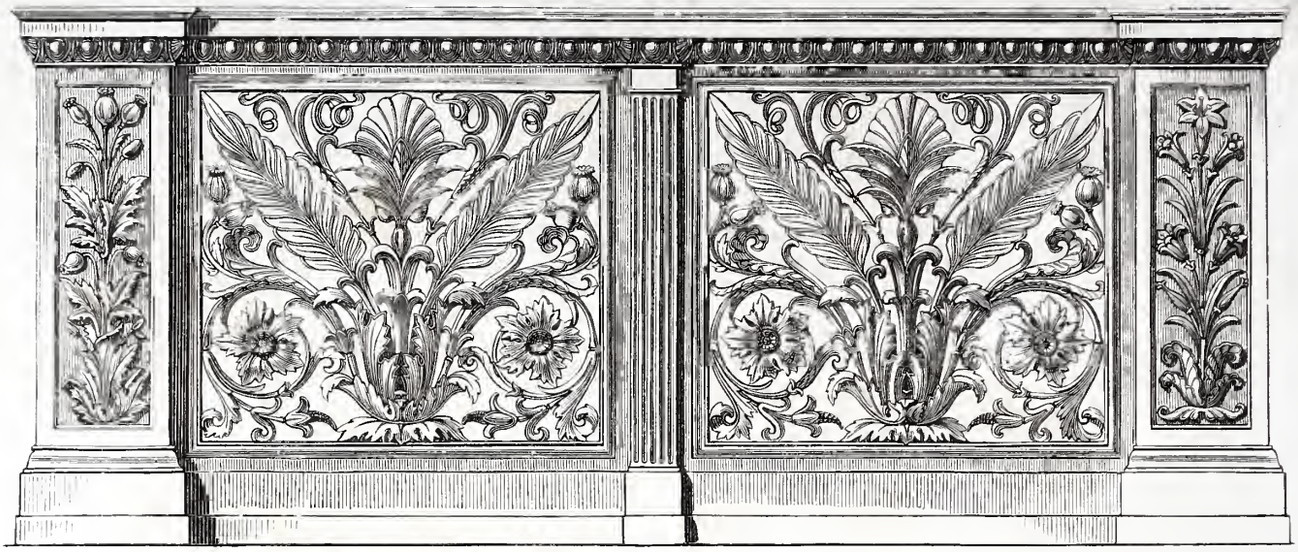
Nos. 15 and 16. Carved Buffet, executed in Italian Walnut from the design of M. G. Kachel, Archt., by Mr. G. Stœvesand, Carlsruhe.
The wood is not polished, but rubbed with wax.
Details in No. 2 of Supplement.



No. 17. Design of Painted Ceiling by M. A. Tœpfer, Augsburg.
Details in No. 1 of Supplement.



Nos. 18—20. Sepulchral Monument, designed in Modern Gothic by Prof. Geul, Munich.



No. 21. Bronze Tomb-Rails Mr. Hitzig, Archt., Berlin.

VARIOUS.

Waterproofing Walls.

One of the most recent of the many uses to which Mr. Frederick Ransome's process of manufacturing artificial stone has been applied is in protecting the outer walls of buildings, so as to resist the action of the weather by making them waterproof.

Even through well-built and substantial walls moisture will make its way, and the ordinary type of dwelling house is very pervious to wind-driven rain. We recently noticed what Mr. Ransome is doing in preserving stone, and his system of waterproofing is only an application of the same process.

The external surfaces of the walls to be protected are first washed with a silicate of soda or solution of flint, which is applied again and again, until the bricks are saturated, and the silicate ceases to be absorbed. The strength of the solution is regulated by the character of the bricks upon which it is to be applied, a heavier mixture being used upon porous walls, and a lighter one on those of denser texture. After the silicate has become thoroughly absorbed, and none is visible upon the surface, a solution of chloride of calcium is applied, which, immediately combining with the silicate of soda, completely fills up all the interstices in the brick or stone, without in any way altering the original appearance. By this operation the wall is rendered perfectly watertight, and, as the pores of the bricks are thoroughly filled for a considerable depth from the surface with the insoluble compound, which is entirely unaffected by atmospheric influences, no subsequent process is necessary.

Mr. Ransome has already successfuly applied this process to a large number of buildings, several of which were previously almost uninhabitable from the constant dampness; and a lengthened experience has proved that it is not only thoroughly effective; but, from the comparative insignificance of its original cost, and the fact that renewals are never required, the system recommends itself for general adoption in preference to all other methods of waterproofing. *Scientific American.*

How to preserve Pencil Drawings.

An ingenious means of effecting this has been invented by M. E. Rouget, of Paris. The invention consists in obtaining the fixation of such drawings, tracings, or sketches, by directly projecting on these latter any suitable adhesive liquid reduced to a fine spray, or in what is commonly called the atomized or pulverized state, by causing the liquid to pass rapidly under pressure through one or more capillary tubes or openings. By this method the defects of the transudation process are entirely done away with, besides which the operation is executed in less time, and may be performed at once by the artist without the slightest difficulty. As for the fixation liquid, any colorless, or nearly colorless liquid which allows of being atomized, and which, after becoming dry, causes the particles of the charcoal, or other drawing materials made use of, to adhere sufficiently firmly to the paper or other drawing surface, may serve for the purpose. Thus, for instance, a liquid, which has given the patentee the most satisfactory results, is obtained by adding to a solution of three ounces of white sugar-candy and two ounces of white shellac in about two pints of spirits of wine, a decoction of about one ounce of fucus crispus in one pint of distilled water.

Bronzing Process.

A Bronzing process, applicable to porcelain, stoneware, composition, picture, and looking-glass is performed as follows: The articles are first done over with a thin solution of water-glass by the aid of a a soft brush. Bronze powder is then dusted on, and any excess not adherent is knocked off by a few gentle taps. The article is next heated, to dry the silicate, and the bronze becomes firmly attached. Probably in the case of porcelain, biscuit, or stoneware, some chemical union of the silicate will take place, but in other cases the water-glass will only tend to make the bronze powder adhere to the surface. After the heating, the bronze may be polished or burnished with agate tools.

Scientific American.

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